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Gleanings in Bee Culture

VOL. XXXIX

APRIL 15, 1911

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THE SOURCE OF THE SOUR ODOR NOTICED IN THE FALL.

IN response to our request we have received quite a large number of explanations of the sour odor from fall-gathered nectar, only part of which we will be able to use. The greater number believe that the aster is usually the source, although goldenrod sometimes accounts for it.

THE NEXT NATIONAL CONVENTION AT MINNEAPOLIS.

FROM N. E. France, General Manager of the National Bee-keepers' Association, we learn that the Executive Board by vote decided on Aug. 30-31 for the next annual meeting of the National Bee-keepers' Association, said meeting to take place in the Court-house at Minneapolis, Minn. This is just before the Minnesota State Fair, so that those who wish to attend both can do so. Board and lodging can be secured at 75 cts. to \$3.00 per day.

BEE-DISEASE LAW IN KANSAS.

LARGELY through the efforts of Dr. G. Bohrer, of Lyons, Kansas, that old veteran who has hit the nail on the head so many times at conventions, Kansas at last has a foul-brood law modeled after the one drawn up by Dr. E. F. Phillips, although some changes have been made in some of the details. For instance, in the matter of penalties, both fine and imprisonment were provided for, because of the fact that a fine could not always be collected, some parties not being responsible. Only one thousand dollars for two years was asked for, as Dr. Bohrer feared that a larger amount would only mean the defeat of the measure.

Mr. J. D. Fair, of Sterling, Kansas, Representative from Rice Co., the home of Dr. Bohrer, deserves credit also for his interest in the matter, and for carefully considering the whole proposition in a businesslike way. For one knowing nothing about bees at all, he certainly grasped the situation in a manner that was surprising. He looked up the

statistics regarding the number of colonies in the State, the amount and value of honey and wax produced, and succeeded in having the measure carried through both branches of the legislature. It passed the House by a large majority, and the Senate unanimously. Would that the majority of our legislators were as devoted to the interests of the people!

Our readers who know Dr. Bohrer will be pained to learn that his eyesight is failing very fast. He will not be able to read these lines, but we trust that they may be read to him so that he may know that his efforts have been appreciated.

BEE-KEEPING IN AUSTRALIA.

AUSTRALIAN bee-keepers are to be congratulated on the very fine treatise on fruit fertilization as given in the January number of *The Journal of the Department of Agriculture of Victoria*. Bees are given full credit for the valuable service that they perform, and an interesting explanation is advanced of the general subject of pollination and fertilization, in which the results of many practical experiments are brought out.

Under the sub-heading, "Relation of Insects to the Work of Cross-pollination," the following occurs:

There can be no doubt that insects play a most important part in the life of plants and flowers. Moths and wasps, bees, and many other insects, all assist in carrying the pollen from flower to flower; but of all insects for this purpose, the bee is assuredly the most useful. The first object a bee has in visiting a blossom is to collect or feed on the flower honey, or nectar, which is always *lower* in the flower than the pistils or stamens. In passing through the flower the pollen grains attach themselves to the numerous hairs on the body of the bee; and as the insect flies from flower to flower it is easy to conceive that some pollen grains will be transferred as the bee brushes against the stigma. The same result occurs when the bee is gathering the pollen, and thus every flower that the bee visits must be pollinated from other blooms. The usefulness and the importance of this work of the bee can hardly be overestimated; and successful orchard practice will never result until the work of the bee is recognized practically by the establishment of bee colonies in every orchard district.

An article entitled "Bees and Fruit Fertilization," by F. R. Beuhne, who is well known to our readers, was published in *The Journal* for November, 1909, and it is recommended that this be read in conjunction with the present discussion.

Some very beautiful engravings are presented, showing bees actually at work on

fruit-blossoms; and these, by the way, are a little ahead of any thing else we have ever seen in the shape of a photograph of bees at work. The Australians are well to the front in the art of photography and engraving.

Mr. Beuhne, in this January issue of *The Journal*, has a very interesting article on "The Production of Comb Honey," which also proves that the bee-keepers of Australia (and Mr. Beuhne especially) are not behind the rest of the world.

FLORIDA NOTES NO. 3; HONEY POSSIBILITIES; THE GOOD AND POOR LANDS; THE MOSQUITOES; THE EDITOR RETURNED.

I DID not get back to Medina till the 5th of April—twenty days later than I had announced. The fact is, I found so much of interest and value that I concluded I could not afford to rush through so much important bee territory as I found in Florida. I shall not have time nor space to go into details at this time; but I will say this much, that Florida is destined to become one of the most important States in the Union in the production of honey. The seasons are longer, and the honey-flows, in some sections at least, are heavier. For example, in Northwest Florida, or, perhaps I should say, in the region of the Apalachicola River, there has been produced as high as 1900 barrels of honey of between 500 and 600 lbs. each in one year. The territory is not overstocked, strange to relate, and it probably never will be, for the simple reason that conditions in that part of the country are so very different that it would take the average bee-keeper years to learn the locality. The ordinary bee-keeper from the North butting into this country, I don't guess but *know*, would make a failure for the first two or three years. The matter of securing plenty of bees for the honey harvest baffles even the old-timers in the locality at times. And, again, there are very few places along the river where bee-yards can be placed; and some of them located there are put up on stilts six or eight feet above the ground, to provide against high water at certain seasons of the year.

On the west coast, and south of Tampa Bay, considerable pure orange honey is produced. The statement has often been made by bee-keepers in Florida that there is no such thing as pure orange honey. Persons making such statements are probably not familiar with this territory. In the region where there are immense orange-groves, and where no other source is in bloom at the time, considerable pure orange honey is produced.

The drouth that was affecting the whole of Florida up to about the 20th of March was relieved by copious rains all over the State—rains that lasted off and on for a week. While this was a little late for some sections, it came early enough to help out the bee-keepers in the tupelo regions of Northwest Florida.

By the way, that section of Florida, especially in the region about Tallahassee, has better soil than most of that I have seen on the west and east coasts of the peninsula. While there are fine hammock lands all over Florida, their areas are comparatively limited. Indeed, it would be my guess (that may be far from right) that 90 per cent of the land in Florida is inferior, if not almost worthless, and only about 10 per cent is really productive. It would naturally follow, then, that there are thousands of people who are buying land (paying big prices for it) that is good for nothing but pine-trees and scrub palmetto. But that does not signify that there is not plenty of good land for sale at fair prices. As I said before, any man who will invest on the representation of a real-estate agent in northern cities *without going to look at the property* is taking a risk. In this connection do not get the impression that there are not honest men selling land in Florida.

Florida has a bright future before her; and during the next ten years one will see a tremendous development, especially in cities on either the east or west coast, or along the inland lakes. Northern men with their millions are pouring into the State by the thousands. Of all the lonesome towns, it seems to me it is those that are located along the regions remote from any water.

It seems strange to me that the northwestern portion of Florida—that portion in and around Tallahassee—has not been more exploited. There are plenty of promoters to boom the east and west coasts, but we see almost none in the northwest part of the State.

The worst things I see about Florida are the mosquitoes, sandflies, and fleas. While their depredations can be mitigated to a great extent by screens and mosquito-canopies over the beds at night, they manage at some seasons to make a tourist mighty uncomfortable. Old residents don't seem to mind them much. Whether it is because they become immune to the bites, or because the "varmints" seek only "fresh stock," I can't say.—E. R. Root.

CONTROL OF SWARMING BY TIERING UP;
PRODUCING COMB AND EXTRACTED
ON THE SAME HIVE.

In Mr. J. E. Crane's article on page 207, last issue, he refers to a plan to control swarming in the production of either comb or extracted honey that we used quite successfully some ten or fifteen years ago, and which we at the time gave in these columns. As we have many new subscribers who possibly would like to know what it is, and some old ones who may have forgotten it, it may be well for us to give the plan at this time, particularly as the discussion of it was scattered over a good many journals.

There was nothing particularly new about it, but, rather, a modification of the plan used by the Dadants and others. The lat-

ter, for many years back, as some of our older readers know, had and are still operating hundreds of colonies with less than two per cent of swarms. But some will say that these people run for *extracted* honey, and that they want a plan that can be used for *comb* honey. Well, that is where the "modification" came in, and which we are about to explain.

In the first place, the plan involves no change of hives, supers, or other fixtures. It is workable with *any* hive or super, and therein lies one of its advantages.

The Dadants have always used large ten-frame Quinby hives, the brood-frames of which are $18\frac{1}{2} \times 11\frac{1}{2}$, and the extracting-frames the same length, but shallower. The basic principle of the Dadant system of swarm control, as we understand it, seems to rest largely in a Jumbo-sized hive—a hive having the equivalent capacity of a twelve-frame Langstroth. The Dadants have contended that the ordinary single-story eight-frame Langstroth brood-nest is too small for the average good queen; that bees swarm because of a lack of room; that a large brood-nest and a large brood-frame give the queen unlimited capacity for egg-laying. Of course, bigness of brood-nest is not the only factor in the control of swarming. The Dadants, when the swarming season is on, see that the bees have plenty of extracting-combs.

Now, it seemed to us that a *two-story* eight-frame brood-nest operated on the Dadant plan ought to eliminate swarming because it is even larger than the Dadant hive, and it did, as our back volumes will testify. We had not a few good queens that would occupy 12 and even 14 frames. All colonies containing such queens were given extracting-supers long before they were crowded for room. Other queens would use ten and twelve frames, though the average used no more than ten frames; and what rousing colonies we had! Some of them were three and four stories high, and a few of them were veritable "sky-scrapers." These were run for extracted.

But how about the two-story eight-frame brood-nests for *comb* honey? These were manipulated a little differently. The two hive-bodies were used up till the honey-flow, when the upper story was removed, and the best cards of brood were put into the lower hive. The rest of the brood was given to nuclei or to two story colonies that were not up to good working strength. A half depth extracting-super was put on temporarily; and when the bees were nicely started in this it was removed and a comb-honey super put on instead.

The idea of using the extracting-super *first* was to get the bees into the *habit* of going above. To put a *comb-honey* super on at the start, when there is a large force of bees, sometimes induces them to sulk and loaf. This condition is the beginning of swarming; and if a colony once gets into a state of discontent or of swarming it is hard to get it into a good *working* mood again.

Sometimes we put on the strongest of the two-story colonies (after being reduced to one) a half-depth extracting-super and a comb-honey super, both at one time. To give only one super, either comb or extracting, is liable to crowd the brood-nest too much.

Thus we worked some colonies for extracting, some for comb only, and some for both comb and extracted. When the season began to taper off we would leave on only half-depth extracting-supers, thus avoiding unfinished sections.

The secret of swarm control as here outlined is in having a large brood-nest up to the time of the beginning of the honey-harvest. In other words, there should be so much room that the colony will have no thought of swarming. Subsequent conditions should be such as to encourage *work*, *WORK*, *WORK*, not loaf, loaf, loaf, till swarming preparations are made. A colony that begins to feel cramped just at the beginning of the harvest is liable to get into the swarming notion. This brood-nest may be in the form of sectional or half-depth brood-chambers, eight or ten frame brood-chambers, providing more than one are used for good queens. After the supers are given, care must be used to see that the bees are not cramped.

If at any stage of the proceedings cells are started, giving room or an upper story may or may not do any good. When swarming preparations have actually been begun we have scattered the brood in two or more brood-chambers, and placed frames filled with full sheets of foundation between each of the frames of brood. A colony thus treated may have so much foundation to draw out that it will not produce much honey. It is a question whether it would not be better to shake it in the first place on to empty combs and run it in the regulation way for comb honey.

The plan of producing both comb and extracted honey on the same colony, or both in the same super, is described under the head of "Comb Honey" in the A B C and X Y Z of Bee Culture. See the Barber and the Townsend plans.

It may be asked why we haven't said much about this of late. The reader will find that they have been described in the A B C for years, and the description of them is still there.

Then why should we consider any other plans? Because the one we have described requires a good season and good queens. For medium colonies run for the production of comb honey some of the shook-swarm plans may be better. Or, possibly, some one of the schemes for shifting the flight of the working force may be more practicable, especially if the season is a short one.

The season, the locality, and the *man* should determine *what* plan to use. We would refer the reader to our work, the A B C and X Y Z of Bee Culture, under the heads of "Comb Honey," "Hives," and "Swarming," for a discussion of these plans.

FOUL-BROOD LAWS RECENTLY PASSED.

In several States there has been unusual activity looking toward the passage of foul-brood laws. New Jersey, Vermont, and Kansas have very recently secured the passage of foul-brood laws modeled after those now in force in Ohio and Indiana—the best laws, in our judgment, that were ever enacted.

A foul-brood bill for Pennsylvania has passed both houses; and from the latest information we have received we have reason to believe that the Governor will sign it.

Michigan, we are advised, will get a bill amending the present foul-brood law so that it will be more effective, through both houses; and the bee-keepers are requested to write to the Governor of that State asking him to approve the bill when it comes before him.

Illinois has not been idle. Her bee-keepers have been putting forth strenuous efforts; but every year they have met opposition from one or two bee-keepers who have tried to make it appear that the supply manufacturers of the country were back of the effort to get a foul-brood bill solely to further their own rather than the interests of bee-keepers. Such a statement is utterly false, of course. While they would be interested in having foul-brood legislation passed because it would help the bee-keeping fraternity at large, it is not because it would increase the sales of foundation or of bee-hives, because the proposed law does not require the burning of diseased colonies, if we are correct, but, rather, recommends treatment advised by the Bureau of Entomology, Washington, D. C.

A foul-brood bill for Massachusetts has been recommended to the House by the Ways and Means committee, and it is said it is likely to pass; but bee-keepers of that State should get busy and write to their legislators.

Tulare County, California, has passed an ordinance for keeping diseased bees out of the county. For particulars, see page 255, this issue.

So the good work is going on. Fortunately, there is almost no foul brood of either kind in Florida and Georgia.

UNCLE SAM'S INCREASE OF \$5000 FOR APICULTURE.

THE appropriation bill for the United States Department of Agriculture for the year beginning July 1, 1911, carries an allotment for investigations in bee culture of \$15,000. This is an increase of \$5000 over the amount for the present year. The amendment providing for the increase was offered on the floor of the Senate by Senator Francis E. Warren, of Wyoming, acting chairman of the Senate Committee on Agriculture and Forestry shortly before the adjournment of Congress, and was accepted by the Senate and by the House of Representatives in conference.

The additional amount for bee culture was found to be necessary chiefly on account

of the demand for more work on bee diseases. The present wide occurrence of the two brood diseases, and the rapidity of their spread, makes it urgently necessary that every thing be done by the government for bee-keeping that can be done. The Department of Agriculture, through its specialists, have been at work on the disease problem several years, and a number of valuable publications have been issued. By means of samples sent in, the men engaged in this work have been able to learn more definitely than was ever known before where the two diseases exist. Publications on bee diseases have been sent out to the bee-keepers in the diseased territory as far as the small office force would permit. In a notice issued by the Department last fall it was stated that American foul brood occurs in 282 counties in 37 States, and that European foul brood occurs in 160 counties in 24 States. It was also stated that the annual loss to the bee-keepers of this country is at least \$1,000,000 annually. Of course, the distribution of the diseases is not yet fully known, but enough is known to make this the most important question before the bee-keepers at present.

With this increase Dr. Phillips and the other men in the Bureau of Entomology should be able to accomplish more than has been possible heretofore. The work done in the past few years has been conservative, and no tendency has been manifested to rush into print with the results of a little work, as is too often done in government offices. The men engaged in the work are trained for scientific investigations, and consequently the work will be of permanent value. It is to be hoped that, with the present increase, still more of the same kind of work can be turned out.

The increase in the appropriation for the apicultural work is largely due to the exertions of Mr. W. A. Selser, of Philadelphia, who happens to have a good friend in congress. He learned that a recommendation for a slight increase had not been favorably acted upon by the Committee on Agriculture in the House of Representatives. Mr. Selser was able to present the facts to several Senators and Representatives in such a way that they agreed to do what they could for the bee-keepers' work. It is natural that the members of the two houses of Congress should not fully appreciate the need for work of this kind, and somebody must take the trouble to urge legislation of this character. The same thing is true of getting State foul-brood laws passed. If bee-keepers want the work in Washington increased it will be absolutely necessary that the matter be brought to the attention of Congress, as Mr. Selser did in this case. This is one important way in which the National Bee-keepers' Association could be of benefit to bee-keepers. The bee-keepers of the country are indebted especially to Senators Warren and Penrose and Representatives McCreary and Scott for the present increase.

Stray Straws

By DR. C. C. MILLER, Marengo, Ill.

PUTTING SECTIONS in cellar before making, to prevent breaking, doesn't work here—needs too moist a cellar and too much time.

J. E. CRANE, you say, page 208, remove queen, destroy cells at the time, and also eight days later; in another week give virgin, and swarming is over. Now, wouldn't it work to give a laying queen instead of that virgin, or else give the virgin a week sooner?

S. D. HOUSE, you seem to value fresh air in cellar. Shake! You say, p. 210, a colony wintered at 38 to 40 will not dwindle as soon as one at 50 to 52. Right, provided the air is the same in each case. But I suppose you would agree with me that a 50 cellar with pure air is better than the average close cellar at 40.

LOUIS SCHOLL, you question, page 161, whether "it may not be possible" to breed larger bees, and whether "increase in the size of the cell . . . would have any bearing." Those questions have both been settled. Years ago I had bees from Florida which were so large as to build worker-cells $4\frac{1}{2}$ to the inch or larger, and in Europe they have reared larger bees by persistent use of foundation with cells of increased size—at least, I've seen the latter statement in foreign journals. But I've never seen proof that increase of size was a material gain.

E. E. COLIEN, you prevented after-swarms by setting the swarm on old stand and the mother colony in new place, p. 212. May not work next year. I'll tell you how to make it a good deal surer. Put the swarm on an old stand; mother close beside it. In eight days or so move the mother to a new place. Your way gives the mother a week to recuperate and send out a swarm. The other way takes away all field bees and brings on a dearth just at the time it would think of swarming, and the first young queen is allowed to slaughter her rivals.

F. GREINER says, page 170, that all bee-keepers together can not do the right kind of advertising "because they can not be united." Please don't settle down into that belief just yet, Bro. Greiner. I know it looks discouraging, and that some honest efforts have failed; but there are some encouragements. Look what the citrus men have done. To be sure, the citrus men are in a limited locality, but a bigger effort may cover a bigger area. Look what has been done in Colorado and Michigan. If the bee-keepers of a State can be got together, why not two States get together, and then why not more and more States?

MR. EDITOR, you say, p. 220, you don't believe in hiving a swarm back on the old

stand on the same set of combs and brood, and hope any who disagree "will give the reason for the faith that is in them." What's the matter with giving the reason for the faith that is in *you*? I'm ready to follow the fellow that gives the best reason. The plan would suit me well, only I'm afraid my bees would swarm out again. [As Grover Cleveland would say, this question involves, not a theory, but a condition. That condition, so far as our experience goes, is that a swarm will very often come out again when hived on old combs; but, on the other hand, it will usually stay contented when hived on another set of empty combs on the same stand. In other words, our faith is based on fact or condition rather than on any thing else.—ED.]

B. C. AUTEN, p. 221, you say publications about spraying advise against spraying during bloom, and then say, "I am afraid you raise a smoke many times bigger than the fire." Well, there's real fire in this locality. A large orchard is in reach of my bees, and the owner begins spraying before the trees are out of bloom. No, the man is not an ignoramus, and he's not a bad man. He is held in high estimation as a good man, and is one of the foremost horticulturists in this region. He says that, with such a large orchard, he can not get through spraying in time unless he begins while the trees are still in bloom, and I suppose he thinks his loss from delay would be greater than my loss in poisoned bees. I believe he is a sincere man, although somewhat mistaken, and I suppose I must stand the loss until Illinois gets abreast with New York and other States that have a law against spraying during bloom. [Your case is by no means an isolated one, as we know by the correspondence in our office.—ED.]

WHY WOULD IT not be possible to send comb and extracted honey by parcels post? is asked, p. 195. Just what they've been doing in Europe this many a year. And it would have been done here long before this if it were not that congress is controlled by the interests and not by the people. May be we'll have to wait for parcels post until United States senators are elected by direct vote. And, again, may be we won't. [If every bee-keeper and every farmer in this country would sit down and write to his senator and representative, even though it be only a brief postal, asking each to support parcels post, we could get the measure in short order whether senators were elected by popular vote or by the general assembly as now. The trouble is, we Americans do not half appreciate the fact that this is a *government of the people*, and that when the people *en masse* express what they want they will get it. If, for example, five to ten million people during a certain month of the year would write to their senators and representatives, asking for parcels post, there would be something doing in congress.—ED.]

Bee-keeping in the Southwest

By LOUIS SCHOLL, New Braunfels, Texas

A HANDY WIRE-REEL.

About a year ago, while helping unload some of a fellow bee-keeper's truck from a car in which he had moved to this locality, I came across one implement with which I was not acquainted. After some guessing I decided that it was a reel for holding the fine wire used in wiring frames, and permitting of easy cutting-up into suitable lengths, as required for the frames used. The spools, or coils, as the case might be, were placed in a holder on the base, and one end of the wire carried over a board of the proper length, so arranged as to be turned with a crank, thus making a reel. When all the wire was wound around this board, and then tied near each end with a stout string, it could be cut at each end of the board, and then one wire after another, just the right length, pulled out by the operator when wiring the frames.



TEXAS HONEY-CROP PROSPECTS.

Here in our immediate neighborhood, and so far as we have been able to learn over a great part of the State, the prospects for a good honey crop are most favorable. Bounteous rains in most portions assure this now, although there are always some spots that are not as well favored as others.

We have had here, besides numerous other rains at various intervals, a 4½-inch rain recently. This assures us a goodly quantity of moisture until well along in the summer months, and is very favorable for a good honey yield.

A late freeze in the early part of March did some damage to the earlier-blooming plants. We have learned from sources further South that this freezing weather, coming, as it did, when the most of the honey-yielding shrubs and trees there had already taken on considerable growth, gave these quite a set-back, so that they may not yield as well as if they had been uninjured. This, however, was in the more southwestern localities, while further north of this section, which includes our own localities, the growth of the different honey-yielders had not advanced to such a degree, and consequently were not harmed in the least.

Taking it all in all, the prospects are very good. Still it is entirely too early to tell very definitely what the season will be.



PARTIAL TO THE DIVISIBLE HIVES.

Since we began to use the divisible or shallow-brood-chamber hives extensively more than ten years ago, we have learned of many others who have tried them after reading what we have had to say about their advantages; and not a few, indeed, have adopted them in preference to any of

the deeper hives that they had used previously. Their experience with the shallow and divisible-brood-chamber hives and the shallow supers, which are identical and interchangeable, shows the many advantages that may be obtained by the use of the shallow hives and supers just mentioned, and that results may be secured that are not possible with the deeper hives and frames. Right in this connection we have the following letter from a bee-keeper in one of the States of the Middle West, who uses these shallow hives to advantage. We quote part of his letter:

After having read your many articles and Mr. Wilder's letter, p. 493, Aug. 1, 1910, I was especially interested in his statement, that the shallow frames are too small to allow both brood and honey in them, and therefore there is no rim of honey above the brood as in the deep frames! Great argument, this! That is the *meat* of the cocoanut. The bees put the honey in the supers above. By having two shallow stories for the brood-nest we can alternate these and keep the rim of honey away from above the brood. By putting the upper story with the honey above the brood below, and the lower story with the combs filled with brood above, the bees store all the honey in the supers. They begin work in the supers immediately, and do not loaf as they do with the deep combs and a rim of honey below the supers.

This alternating also furnishes as much brood as is wanted, as it stimulates brood-rearing and gives the queen and bees plenty of room; and if they are kept busy storing the honey above, there is not the least desire to swarm. With the deep hives and the rim of honey next to the brood, the brood-nest becomes crowded and the swarming fever begins. That is just what starts queen-cells and swarming right at the time when the bees ought to be in the best shape for storing honey in the supers. In deep frames, the rim of honey around the brood can not be gotten out of the way, but with shallow frames it can be removed without any fussing.

I wonder how much longer others are going to keep arguing in favor of those bulky deep frames which are often stuck to the walls of the hives, or buckled down during hot weather on account of their depth, or the foundation stretched to such an extent below the top-bar as to allow the rearing of nothing but drones in them. Yes, and queen-cells are built anywhere in the middle of the combs where they can not be seen except when the frames are removed, while with shallow-brood-chamber hives all that is necessary to do is to raise a story; and the cells, if there are any, are found along the lower edges of the combs.

Then, again, a shallow story with either honey or brood may be removed in a jiffy; and with a snap, a few jerks, and a shake, every bee will be shaken out of an entire super in the same time required by the other fellow to dig out a single comb from a deep hive. In this way much more has been accomplished. Time and again I have been asked to reveal my secret of success in getting a larger yield of honey than some other bee-keepers. It is so simple any child can understand it. My bees gave me 150 sections to the colony. Seven old stands gave me 1680 lb. sections. I have foul brood to contend with. For the lack of swarms I am compelled to make all my increase artificially each year, or sometimes I buy nuclei. This is because I cut out all swarming by the use of the shallow hives.

Our experience has been so much like that given in the above letter that we give it place here. While there are points of superiority in the shallow divisible hives it must *always* be borne in mind that, unless the right kind of system of manipulation is used with it, these can not be taken advantage of, as there is no value in shallow hives if they are used in a manner similar to deep ones; i. e., frames handled individually instead of handling them in full shallow stories, etc.

Siftings

By J. E. CRANE, Middlebury, Vt.

When I read F. Dundas Todd's explanations of bee-hives for beginners, p. 21, I feel as though I wanted to begin all over again.

What makes the central leaves of almost every number of GLEANINGS burst apart like a rich ripe melon? Is it because it is so full of sweetness, I wonder?

I was glad to note, on p. 68, Feb. 1, that the demand for cartons to cover comb honey is on the increase; but our New England markets demand a full carton rather than one of those scrimped four-sided affairs.

M. E. Truitt, page 70, Feb. 1, gives some very good proofs of the antipathy bees have for anything black. On the other hand, I have no doubt bees will, to some extent, become accustomed to dark clothes; but it is doubtful whether it will pay to try to educate them. They are too short-lived and too numerous.

Page 20, editorial on the importance of accurate and honest grading of comb honey is worthy of being printed in italics or heavy-faced caps. When will the rank and file of humanity learn that honesty is not only the best policy, but at the very foundation of all commercial prosperity, to say nothing of character?

Much has been written of late on winter-nests for bees. I recently found one of considerable interest. Last Saturday I looked over three yards, finding every colony alive. One, however, had gone to the outside of a division-board, where there was nothing but two heavy combs of honey, and the bees had clustered there, having come through the winter in good condition.

That is a new wrinkle in percolating sugar syrup and feeding, given by Dr. Miller, page 88, Feb. 15. How stupid of me not to have thought it out before! Why, I thought the percolator folks had something like a large water-filter into which they poured fifty or a hundred pounds of sugar and then water on top, and that in two or three days it was drawn off to be fed to the bees. Thanks, doctor. "Doesn't it leave a lot of hard crystallized sugar in the bottom of your feeders?"

Mr. J. L. Byer calls attention, on page 63, Feb. 1, to the importance of having the hives so arranged as to work with the least expenditure of strength. It is amazing to see the amount of energy many people waste because of the lack of forethought.

Some will stoop when they could stand upright, and others will stand when they might be sitting down just as well, while still others will fret all day long over trifles, leaving little strength for essentials. I remember having found a bee-keeper, many years ago, who was sitting on the floor of his shop nailing shipping-cases together instead of using a chair before a low table or bench. Some, too, will even lug honey or clamps long distances in their arms when a light wheelbarrow would save both time and strength.

On page 85, Feb. 15, the editor invites discussion regarding corrugated paper and better shipping-cases. I feel as though I had already had my share in this matter; and it has been a surprise to me that more interest has not been taken in this subject. Only this morning a neighbor was telling me of a bee-keeper in a neighboring town who sent a lot of honey to market in corrugated-paper cases and wooden cases; that in wooden cases was so badly broken that it was returned to him, and he had the privilege of paying freight both ways, and, in addition, a lot of broken honey for his pains.

Mention is made, page 86, of a shipment of comb honey received at Medina in the Crane corrugated shipping-case. I was interested in that report, for I packed that honey myself; and while it was of fine quality, though rather light weight, it was very poorly attached to the sides and bottoms of the sections—to many of them, scarcely at all. It was shipped during the coldest part of the year, and doubtless was transferred once or twice on the way from one car to another. What would have been its condition when received, if it had been in wooden cases? I believe the editor is quite right in thinking that the cross-partitions inside the case are of much value, as it can readily be seen that every partition helps to break all further jars.

The honey referred to was raised in the Champlain Valley, about twenty miles from here—supers with solid separators.

We shipped another large lot of honey of our own production to another place in the West, and the parties receiving it write they are so well pleased with it, and the way it was put up, that they would like to handle our honey exclusively another season. Our honey averaged a little more than an ounce to the section more than the lot shipped to Medina, and was well attached to the sides and bottoms of the sections. What made the difference? I believe it was largely due to the different separators used. One lot was produced with solid separators, the other with those which were slatted, having pins to hold them in position, thus giving the bees free access, both lengthwise and crosswise, through the super. An ounce to the section on our 1910 crop would amount to upward of 1500 lbs., and would be worth between \$200 and \$300. It pays to look after these little matters, and to get the best separators and shipping-cases.

Conversations with Doolittle

At Borodino

COMB HONEY AND SEPARATORS.

Will you explain how to work successfully for comb or section honey, and state whether it is as easy to produce as extracted?

I have always considered that the securing of a fine crop of comb honey each season is the best test of skill and proficiency in the art of apiculture. In the production of honey I take most delight in working for the comb, as it seems to me that nothing is more beautiful than a perfect specimen of clear white comb honey. This is especially true when the combs are uniform, smooth, and well filled. Almost anybody can secure extracted honey; and for the novice, or the one who does not study to attain the best, it is, perhaps, wisest to work for extracted honey. The advantages in comb honey are: A much more beautiful product—one which brings a much higher price in the market, and the satisfaction of knowing that the highest skill of the art has been attained. However, there is generally a smaller quantity secured, and it is much more difficult to ship comb honey so that it will reach its destination in perfect condition. With colonies very strong, and a bountiful harvest of nectar, I have succeeded sometimes without separators in getting quite uniform and well-filled combs in sections which were filled with thin comb foundation; but with a moderate yield of nectar I have found many of the combs thicker, and a general lack of uniformity. I decided years ago, because of this unevenness, that it was never wise to try to get along without separators.

The first effort toward the production of comb honey should be to have the colonies strong at the dawn of the surplus flow of nectar. This requires a knowledge of one's location, whether there are many flowers blooming in the field, and which of these will best supply the needs of the bees and the multitudinous brood. Generally speaking, in New York, clover, linden, and buckwheat are the main flora giving a surplus above that needed by the bees.

Supers should always be ready to set on the hives of all strong colonies at the very beginning of the honey-flow; otherwise the first honey is stored in the brood-chamber, the swarming fever contracted, and the season frittered away.

No one who works for section honey can afford to dispense with thin comb foundation. I usually put full sheets of foundation in the sections, especially in the first super, although good-sized starters do very well. A few bait sections must be used in the first super put on each colony to secure the best results. If I could have my way I would have every fifth section in the first super a bait, using them in two tiers, each two-thirds of the way from the center on

either side. This would start all colonies, strong enough to work in sections, on the whole number in the super at about the same time, which is of much advantage in securing nice, even, snow-white capped honey which now is styled "fancy white." I can not make it pay to cut out the combs from the partly filled sections in the fall and sell them for "bulk comb honey," as many tell me they do.

After having decided that it was never wise to try to produce section honey without separators, the question which next confronted me was how to use them. During my thirty-five years' experience with separators I have used solid tin and wood, queen-excluding zinc, fences of wood and tin, and $\frac{1}{4}$ and $\frac{3}{8}$ inch-mesh wire cloth; but I have come to the conclusion that, for me, nothing is as good as tin separators nailed to wide frames; and as my honey has always brought as much as a cent or two more a pound than the highest market quotations, I see no reason why I could secure better prices if I were to change my system of securing section honey. After an experience based on many carefully conducted experiments, I am satisfied that the claim that tin separators have a tendency to cause less work in the sections, resulting in a decreased yield of section honey, is more theory than fact.

I prefer wide frames, because the bees do not have access to the outside of the sections at any point except the edges of the horizontal pieces above and below the separators, and here there is very little stain or bee-glue used. Hence when the sections are filled and finished they are nearly as new and perfect as they were when put on the hive, requiring little if any scraping to clean them of propolis, or bee-glue, as it is often called. This is no small item, as our older apiarists know who have spent days if not months in cleaning sections so they would be presentable when marketed. With a good yield from basswood, I have taken off hundreds of sections each year, that came out of the wide frames nearly if not quite as clean in all parts as they were when they left the supply-house.

More work is undoubtedly required when producing comb honey than extracted; but as the larger part of this work can be done during the slack season of winter, the real rush of the busy honey season is much lessened, so I have always considered it easier to produce comb honey than extracted.

Homestead Lands with Bee-ranges Scarce in Idaho

We note, page 184, March 15, Mr. J. E. Miller's letter on "Idaho as a Bee State." Mr. Miller is right in his statement that there is yet homestead land to be had in Idaho; but he is mistaken regarding the possibility of securing a bee-range on or very near homestead land. We are holding down a homestead, but our bees are four miles from it, in the irrigated valley. We agree with Mr. Bradshaw, page 96, Feb. 15, that at present all the range is well stocked. Evidently Mr. Miller has not thoroughly investigated the question of ranges.

Parma, Ida., March 21.

WENDT BROS.

A PLEA FOR HOME-BRED QUEENS.

Do Queens that Go through the Mails Equal in
Egg-laying those Reared at Home
if One Knows how?

BY ALFRED L. HARTL.

Some very good and up-to-date bee-keepers are advocating the purchase of queens; but I have never been an advocate of the practice, because I am sure that I can rear my own queens cheaper, and have my colonies headed by a vigorous queen the following season, and not by a half-dead one—at least she looks half dead in her egg-laying after she has gone through the mail. Home-bred stock certainly puts a different look in our supers the following season, and a different feel in our pockets. I have bought queens from different breeders for years, but haven't received a queen that has come up to the average of my own.

I don't intend to boast about my queen-rearing at all. I only want to give my reasons. I do not rear queens for sale, so have no ax to grind. I rear them only for my own use. I don't want queen-breeders to get the impression that I think they are sending out nothing but half-dead queens, because I know that the queen-breeders are just as honest and honorable as the men who depend on honey-production. It is the confinement and rough handling in the mails that hurt the royal mother. By rearing queens from such a purchased breeder her daughters will always be ahead of her—that is, in prolificness at least.

Now, isn't that enough evidence to show that the queen we buy is of good quality? But she is incapable of laying as many eggs as she might, simply because she has been injured in some way.

It is very profitable to rear one's own queens—that is, for the experienced beekeepers, not for the novice.

I make it a rule to requeen all colonies every fall that do not come up to the average. Seventy cents or a dollar for each queen amounts to something worth considering. To have our surplus-honey crop cut in two on account of poor queens amounts to still more; so, do you blame me for breeding my own queen-bees, thus saving and gaining all this?

After the flow the apiarist's work is not so much in a rush, and that's the time to get busy rearing queens for the next season.

As the queen is the foundation of our honey crop we surely must keep an eye on that most important matter to determine the quality of our queens, so we may be ready to requeen all weak colonies at the earliest opportunity.

We leave the requeening till fall unless we find a colony headed by a played-out queen in early spring.

Some might say they would not have queens reared after the honey-flow; but I have reared queens during the flow and also

during a drouth by feeding them daily, and never could determine any difference. On the contrary, it occurs to me that the queens reared during the feeding period are superior.

Is there any excuse for not rearing our own queens? Surely all bee-keepers who keep bees in an up-to-date way can at least find enough time in the fall to employ in queen-rearing, which is always a profitable and sure income. By all means buy some queens if you have no good stock.

Before we establish our queen-rearing yard we must test our strain of bees. It is penny wise and pound foolish to rear queens from a poor home-grown strain of bees. So in that way we can not do better than to buy some queens from different breeders to test the different strains, and then select the best from them for our own breeders.

Elmendorf, Texas.

NO SWARMS IN FIVE YEARS.

A Triple-walled Hive and Plenty of Empty
Combs in the Brood-nest Stopped all Swarming.

BY C. D. BENTON.

By trade I am a mason, and therefore am away from home a great deal through the day. When I was considering keeping bees I was told that the colonies would swarm, and that I would lose them, as I could not be at home; but during my five years' experience I have had absolutely no swarms thus far.

My first two colonies were in single-walled hives, and every hot day the bees seemed to suffer from the heat. By leaning some boards against the hive for shade they seemed to be relieved; and when I put on more boards the results were still better. In building my own home, few years ago, I gave considerable attention to the problem of making it warm in winter and cool in summer, with the result that I built two air-chambers in the outside wall. The contrast between this house and houses built on the ordinary plan is very marked. As the house was a frame structure I felt that the same plan might be carried out in a bee-hive; so I built two hives with triple walls and packed the inner space with cork chips, leaving the outer one empty. As soon as I could I placed my two colonies in these hives, which were of the eight-frame size, and one of these colonies was watched very closely in order that all the movements of the queen might be noted. After filling the first clustering space on each side with eggs she moved over to the other side of the comb. I was afraid that all the eggs on the outside of the brood would be chilled if a change of weather came, so I proceeded to put an empty comb in the center, which the queen occupied immediately. This plan I kept up all summer; and, although one of the colonies was very large, neither one swarmed at all.

The next season I bought three more col-

onies, as I did not wish to divide the first two, as that would spoil the test that I was making for swarming. That season, like the first, I had no swarms. All colonies were given empty combs in the center of the brood-nest. All this time the entrances were only $\frac{3}{4}$ by 4 inches, and old bee-keepers all around told me that the colonies would swarm for lack of ventilation. However, they were fooled; for, although I tried different strains of bees, such as Caucasians, Banats, blacks, hybrids, goldens, and leather-colored Italians, the result was always the same—no swarming.

The third year I had 23 colonies to experiment with. I put them in three, five, ten, twelve, twenty, and twenty-four frame hives, always putting empty combs in the brood-nest, as before, and, again, there was no swarming. I have continued this process for five years, always with the same results.

Mr. Alexander says that swarm-cells intensify the tendency to swarm. Yes, and superseding-cells intensify superseding, and cells used from a good honey-queen intensify the gathering of honey. As I have had no swarms I have reared no queens from swarm-cells, all of my queens coming from colonies that have had no desire to swarm, so that, to keep up the colony life, the bees had to supersede their queens. Nature provides an evolution in bee-life by superseding, hence there is no need of swarming. I do not think non-swarming is contrary to nature, for I believe what Mr. E. L. Pratt once said when he stated that swarming is not increase. During three years of queen-rearing from superseding-cells, and using drones from such queens, I have noticed quite a difference as to how old the queens are before the bees think of getting rid of them. Last season I was not able to keep a single queen that was over a year old except by close watching to cut out all queen-cells.

Some may suggest that these were all weak colonies, so that, of course, they did not swarm; but I should like to ask what constitutes a weak colony. When eight to twelve frames of brood are on the go all the time, and when one queen in particular in a 24-frame hive-body keeps 18 combs in constant use for brood-rearing, I do not regard such as weak colonies.

I use no eggs for queen-rearing except from five-banded golden Italian queens less than a year old. I pay ten dollars for breeders.

In early spring I take especial pains to confine all colonies to only the number of combs that they will cover from top to bottom. I use division-boards on one or both sides of the cluster, and remove the rest of the combs to the honey-house. When inserting empty combs in the center I expand the cluster until the hive is full. One comb the first week seems to be a plenty, after the queen commences to lay. After brood-rearing is well started I find two combs a week is enough for the average queen. Of

course, conditions vary in this respect. I had one queen last summer that used four combs a week. When the hive is full of brood and honey I remove one outside comb on each side of the hive to make a place for the empty ones in the center, and I either extract these or use them for forming nuclei. Combs that have been extracted are used in this way just like those that are empty.

All my hives are triple-walled. I think this feature has more to do with the prevention of swarming than the spreading of the cluster; for by the latter plan a larger colony is secured, that, in time, has no more room; hence I see no reason why bees manipulated in this way might not finally swarm just the same, if they were not in a hive kept cool by the three walls.

Akin, N. Y.

TOADS A REAL PEST IN SOUTH AMERICA.

BY JUAN CHRISTENSEN.

I have had a curious experience with bees. I may say that I am an amateur with no experience, but I am getting it. About a year ago I bought two swarms in frame hives, and I brought them to this place (600 miles) by rail, and set them on stands about a foot above the ground, at a place called Beltrán, where I was at the time. I now can go there only occasionally for a day or two. About the middle of November I left them doing well, as I thought. Arriving there at midnight on December 31 I was up on New Year's day at 5:30 A.M. and had a look at one of the hives and found not a bee out. As the climate is warm and dry I had raised the hive about an inch above the base-board, as recommended somewhere, in order to ventilate well. I peered under the hive and saw some dark objects. Thereupon I lifted off the hive and found 12 fat toads which had gobbled up most of the bees. Notwithstanding I am half a Theosophist I lynched those toads. From this hive I have taken sixty sections this season, but there are too few bees to gather more honey now.

Next I went to the other hive and found seven toads comfortably lodged inside the hive, and most of the bees inside the toads. I found the queens in both hives, but no eggs nor brood. I placed the hives on higher stands.

The bees are hybrids of some sort. Later in the day I found them so demoralized that they were being robbed by a tiny yellow bee about the size of a mosquito.

I do not know where the bees get the honey, but they seem to be able to find it. I have noticed them on algarroba, mistol, aguaribay, jarilla, chañar, alfalfa, and on weeds the names of which I do not know.

I would like to get Italian queens, but I suppose I am too far off from anywhere to get them by mail. They would take a month to come from North America.

Santiago del Estero, Argentina, S. A.



FIG. 16.—EDWIN G. BALDWIN'S "MEDRA" QUEEN-REARING APIARY AMONG THE PINES, CENTRAL FLORIDA, IN THE ORANGE BELT.

BEE-KEEPING IN FLORIDA.

Some of the Difficulties.

BY E. G. BALDWIN.

Continued from last issue.

Were it not for the fact that there is no rose without its thorn, bee-keeping on the peninsula might be the "Eldorado" of apiculture, the beeman's paradise. As it is, bee-keeping here is beset with as serious difficulties as it is further north. To be sure, that bugbear, the winter problem, has not to be met and overcome here; nor has foul brood made its dreaded ravages in our fair State, that our northern brethren are now experiencing. But let me enumerate some of the "lions in the way;" then decide for yourselves whether our favorite pursuit in Florida has not foes worthy of the bee-man's best steel.

Foremost among his arch enemies stand the deadly freezes, already alluded to, that sweep down on our fair land, congealing the succulent juices of myriads of trees and semi-tropical shrubs and plants into solid frost, leaving the land a blasted and withered heath. Not only does the orange-grower suffer, but the bee-man, whose chief surplus is from that source, suffers with him. The apiarists, too, who depend largely on the black mangrove for surplus, are as hard hit

as any branch of agriculturists, and many were driven altogether out of the business back in '95 and '99, never again to join the ranks; and when one branch suffers, all suffer indirectly; for when the orange-man has no fruit, he has no money with which to buy honey, and local prices and local demand suffer. Such damaging frosts come about every ten years, with a less severe one between them. Of course, this is on only a very general average. There is not really any set time. Were it so, then preparations could be made.

In 1886 there was a deadly freeze; in 1895 an even more severe one; in 1899 one not quite so bad, though bad enough; and in 1909 another severe freeze. The latter was not quite so damaging to trees as was at first feared. The palmetto does not suffer at all from the cold "snaps," nor do the southern portions of the State feel them as severely as the northern half. There seems no remedy against the ravages of Jack Frost. The bee-men of Florida must even take their share of the burden along with the rest of mankind. Proper conservation of the natural forest resources would no doubt do much to prevent, if not entirely, at least in great part, the suddenness and severity of these cold waves that now come with such merciless swiftness. The cutting-away of the pine woods so generally over large areas of the State and the northern tier of States,

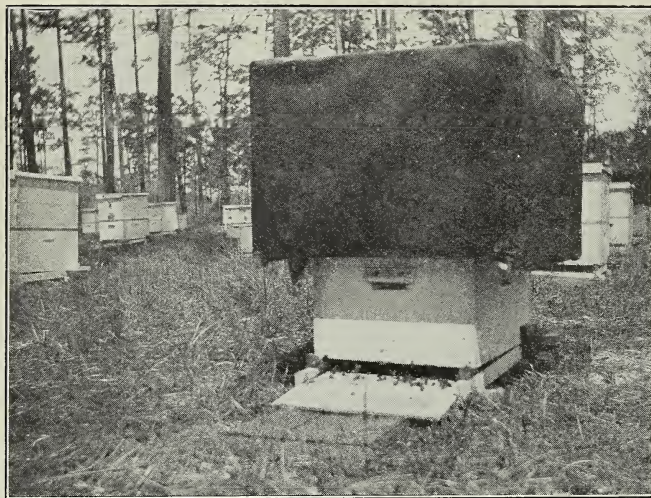


Fig. 17.—Corner of queen-rearing apiary of E. G. Baldwin, DeLand, Fla., showing tarred-paper warming device for the cell-building colonies in early spring. The hive is lifted from bottom-board by entrance blocks to prevent too great heat during the hot part of the day.

undoubtedly has much to answer for. But Uncle Sam has started forest conservation in one large tract in the central part of Florida, and is making attempts to reforest denuded tracts. There is hopefulness in the movement.

One thing is certain: Our early springs and late autumns feel the vascillating weather of the North much more quickly, and drop with a suddenness that follows the pulse of the thermometer north much more perceptibly, than was once the case. This results, beyond contradiction, from the deforesting of so much of Florida lands. Our wall of stately pines is sadly eaten into by the gouge and saws of the turpentine and lumber men. The changing spring weather hits the queen-breeder hardest of all. Last spring was a case in point. Many queens were lost as late as April, due to the cold spring north. When one reflects that February and March are the queen-breeder's most vital months for his early trade, it is easy to see with what feelings he views the increasing demolition of the natural pine woods. There is no tree nobler in appearance nor richer in its gifts to man than the long-leaved Southern pine. Here is a glimpse into a ten-acre group of them—tall, stately fellows, fifty, sixty, even seventy feet high, whose tops of shimmering green blend with sun to form a desirable shade for the hives below (Fig. 16). Fig. 17 shows a corner of the eighty-colony apiary of the writer at DeLand. The entire yard consists of Moore's leather-colored Italians, that have never failed to produce at least somewhat of a crop of honey, even when other bees all around were starving for food. Here are reared queens for Northern bee-men who need early queens. The only shade is that from the pines, even in the hottest months of the

year. Occasionally, in the height of the swarming season, March and April, shade-boards are also used, but not after May. But, hot as are the days in March and April, the nights are often severely cool, so that queen-rearing under ordinary methods would result in nothing but disaster. A temperature of 90° in the shade, with 45° at night, or even lower, is no uncommon range of temperature at that time. In the apiary shown, the queens are reared above excluders in powerful colonies; but the cool nights will often drive the bees of unprotected hives down into the brood-chamber, leaving the

upper story cold and empty. To accommodate both the extremes, two devices are necessary: First, plenty of air below the bees by day, and plenty of covering over the upper story by night. Both plans are shown in the hive in the foreground (Fig. 17). The hives are raised by means of the entrance wedges from one to one and a half inches above the bottom-boards in front, and the upper stories are covered with four thicknesses of burlap, and this with a tarred-paper case as shown. The black paper, suggested by a note in Mr. Alexander's pamphlet, absorbs the heat during the latter half of the day, and gives it off slowly to the hive during the frosty nights. Repeatedly I have lifted the cover of one such hive on a chilly morning, only to find the upper chamber swarming with bees as active and lively as on a May morning—no cessation of queen-cell building there. About eight or nine o'clock in the morning the black cases are set aside till three or four in the afternoon, depending somewhat on the temperature. Both blocks and case can be seen in the illustration. The blocks, by the way, are the same tapering wedges that act as entrance-contractors in cold months or during a robbing time. The large entrances and the warm covers may look like a paradox to outsiders; but in our vascillating spring months they are essential to the successful rearing of queens. The hives shown are all dovetailed and painted, Root stock, the best and strongest hive for Florida of which I have any knowledge. An unpainted and ordinarily nailed hive will warp and check and absorb moisture till it is out of all semblance to a hive. Early queen-rearing in Florida demands untiring patience, energy, and resourcefulness. Mr. I. T. Shumard, I think, is about right when he says that not

more than one man in fifty will make a success of it.

Then there is this troublesome feature, that, in many localities, and in many seasons in the same locality, the light crop of honey is overlapped by the earlier or later blossoming of another source, whose honey is rank or dark, or both, tainting or tinging the clear nectar with its gratuitous but unwelcome contributions. We have already referred to the almost simultaneous blossoming of orange and wild cherry. Let one or the other hasten or retard its coming, and dire are the results. The wild cherry is almost always found in plenty wherever the orange-tree thrives. If too near together, it is impossible to keep the two honeys distinct. The clear honey becomes reddish-brown in color, and in taste more resembles the tang of a peach-pit. Few honey-flows in the North are so menaced on all sides by inferior flows as are many nectar periods here. It constitutes a real difficulty with

many. Happy is that apiarist whose overlapping sources all yield equally choice nectar. The latter is the fortunate case of those men on the East Coast whose first crop, the saw palmetto, comes along with the gallberry, and whose second crop, the black mangrove, is almost coincident with that from the cabbage palmetto. Both blends are delicious. There is no deterioration from the double sources.

DeLand, Fla.

To be continued.

BEE-KEEPING FOR BEGINNERS, ILLUSTRATED.

The Gravity Separating-tank; how Constructed.

BY E. D. TOWNSEND.

In the accompanying picture, Figs. 1 and 4 show our latest pattern of separating-tank. It is built of galvanized steel, 32 inches

high and 22 in diameter. Near the bottom a 1½-inch Scoville gate is soldered, the lower side of the hole being just 2 in. from the bottom of the tank, so that, when the gate is wide open, 2 in. of honey will be left in the tank, when all has run out that will. With this construction no scum will pass the gate, even if all the honey possible is drained out.

On the side of the can containing the gate a partition is soldered, cut out of a piece of galvanized steel 15 inches wide and 31½ inches long, after the edges have been turned over. The upper edge of this partition, as shown, is just even with the top of the can; but there is a space between the lower edge and the bottom of the can of half an inch.

The float is made of hard-wood slats ¾ inch wide, placed about ¼ in. apart. The length of these slats is such that the float is about ½ inch less in diameter than that of the can, and at intervals of two inches around the circumference staples are driven in and left projecting a little less than ¼ inch. These permit the float to rise and fall very readily, as there is less friction than if the wood were in contact with the side of the can.



E. D. TOWNSEND'S LATEST SEPARATING-TANK FOR CLARIFYING HONEY WITHOUT A STRAINER.

Fig. 3 shows a 60-lb. can on the scales ready to be filled. The separating-tank stands on the floor, while the scales containing the 60-lb. cans are down in a pit, as used at our Camp 23 yard in Charlevoix Co. This is shown more clearly in Fig. 2, where my oldest son, Delbert, who has charge of the 269 colonies at this location, is filling a can. The principal point to be noticed is the position of the hands. It must be remembered that our honey is canned while still warm from the hives, so that it runs quite rapidly. Then our honey-gates are all of the $1\frac{1}{2}$ -inch size, so it does not take long to fill the can. From the time the gate is opened until the can is full the hands are kept in the exact position shown in the cut. An exception to this rule is when the honey is not in good condition to extract, it being rather too cold, so that it runs very slowly. Then the right hand is allowed to assume a position of rest. The eyes are kept on the stream of honey running into the $1\frac{3}{4}$ -inch opening in the can. The weight of the left hand makes the scale-beam go up at about the 59-lb. mark; then the gate is nearly closed; and when the scale-beam is seen to start up again it is closed entirely. This operation seems rather long and tedious, but we keep the separating-can nearly full at all times, drawing out only two or three cans at a time, which really does not take very long with this rather large gate. This plan of filling cans is the only one that we have ever tried which at some time or other has not gotten the start of us, run the can over, making a sticky mess, and losing a lot of honey.

Let me call attention again to this Scoville gate that we use. With some of the cheap gates, and, in fact, with most of them now in use by bee-keepers, the cut-off is flat; and when the gate is opened the stream shoots to one side and misses the opening in the can until the gate is wide open, and then, of course, they work about as well as any; but when the handle is put down again, the stream will be deflected to one side, thus daubing the can. With this Scoville gate the cut off slides squarely over the opening from the top. This is a good point in itself; but the main advantage is that this sliding portion has a rounding opening corresponding with the bore of the gate, so that a round stream is assured whether the gate is partly or entirely open.

In working this "rapid" separating-tank one must bear in mind that, if warm honey from the extractor, containing impurities, is poured in with the cold honey previously extracted, the results will not be very satisfactory. The warm honey will mix more or less with the cold honey in the tank; and as impurities do not separate very fast in cold honey, some of the particles of comb, etc., will be drawn through the gate. I have called our tank the "rapid" separator to distinguish it from the ordinary separating-tanks that are large enough to hold the day's extracting, and in which the honey is left to stand over night, then skimmed and can-

ned in the morning. To operate our rapid gravity separating-tank we always begin with the tank empty and the separating-float in place. As soon as the honey is extracted, and while it still has the warmth from the bees, the tank is filled full; then with a large spoon, what little scum and particles of comb there are on the gate side of the partition are skimmed off into the main part of the tank. This is not absolutely necessary; but since we want to keep this side of the partition as free from impurities as possible, and since there are more impurities on this side of the partition the first time the tank is filled, it is better to skim the first time at least.

Our practice now is to draw but one, two, or at most three, cans at a time, keeping the tank as full as possible, drawing it off only as it becomes too full, and when some one has the time from other work to do it. By this plan, while not much (if any more) time is actually spent in weighing the honey, the tank does its part better.

When the extracting for the day is over, the tank should be left full and the float removed to the uncapping-tank to drain, the honey underneath being well skimmed, especially that on the gate side of the partition, as any particles on that side go into the 60-lb. can with the honey. The partition extends to within half an inch of the bottom of the can, as mentioned before; and since every thing has to pass down under it to get to the gate, the honey may be drawn lower before impurities begin to come. We then draw off the honey into the can until there is none left except that containing a considerable amount of scum. The work should be continued, even when there is not enough left in the tank to fill a 60-lb. can. All should be drawn off possible, the cap being screwed on the partly filled 60-lb. can, and this one set away to be the first one filled the next morning.

Some have had trouble with this separating-tank. I would suggest that all such try it again, making sure to build the float of heavy wood like oak, beech, maple, or birch, and put the slats not further than $\frac{1}{4}$ inch apart. With this heavy float a pail of honey emptied upon it will not sink it down very much, almost the whole contents of the pail remaining on top. Gradually, however, the float will find its way to the surface. The object of the float is to prevent the fresh honey, as it is poured in, from disturbing the part underneath, already partly separated, so that the work of separation will not be retarded. This makes all the difference between rapid and slow work.

There is some question as to how clean honey must be for the market—that is, I mean what portion, if any, of the scum is permissible. When honey is strained through cheese-cloth, and canned as fast as extracted, the scum is nearly all with the honey in the can. No one has objected to this, especially since it has been mentioned that this very scum represents the aroma, bouquet, and almost all the elements that



A DOCTOR'S APIARY ON A ROOF IN WASHINGTON, D. C., THAT HAS BEEN A SUCCESS FOR THE LAST TEN YEARS.

go to make honey superior to other sweets. If the volatile oils are allowed to evaporate by leaving the honey in open tanks to get all the impurities separated, as has been the practice heretofore, some of this beautiful aroma is lost, and honey is placed nearer the level of the cheaper sweets. We can not afford to do this. The 60-lb. can is a distinctively wholesale package; and as all dealers melt and remove any foreign matter before bottling or canning it for retail trade, a little scum on top of that in the 60-lb. can does no harm, and the up-to-date dealer knows that he has in that can all that goes to make good honey, provided there is nothing in the way of an objection but the scum.

The time is ripe when producers of extracted honey should wake up to the importance of canning the honey as soon as possible after it is removed from the combs. We must all be progressive, and adopt such a system.

Remus, Mich.

A DOCTOR'S ROOF APIARY.

BY MARY A. MUNSON.

I know a busy doctor in a large city who realized he was getting a case of "nerves," so prescribed for himself a fad. Being country-bred he decided on bees. He had a wooden platform made in sections so it could be easily moved. This he placed on

the roof. On this platform he arranged eight hives of bees. Around the roof a wire fence was fastened to upright posts, and across the roof wires were attached to the same posts. A grapevine growing up the side of the house was trained over these wires, and a beautiful roof of leaves was formed. Incidentally two bushels of grapes were picked from that vine in 1910. It has been ten years since the doctor took up the bee fad, and in that time they have more than paid their expense. His large family have had all the honey they could eat, friends and neighbors have been supplied, and there has been some to sell at a good price. Meantime, the tired nerves have been cured by the interesting study of bee life and the manual labor incidental to their care.

Washington, D. C.

A SWEET-CLOVER COW.

BY WESLEY FOSTER.

Being bee-keepers, we are always a little prejudiced in favor of any thing that is popular with the bees, and so all the cows we ever owned have been given sweet clover to eat at every opportunity; and the calves have been introduced to the tender green leaves and blossoms almost before they lost their wobble. Perhaps we have shown about as much zeal in teaching the calves to eat



WESLEY FOSTER'S SWEET-CLOVER COW IN HER FAVORITE PASTURE.

sweet clover as many a German daddy does in teaching "Bubschen" to sip beer. Any way, we never could taste the sweet-clover taint in milk and butter as soon as our neighbors, and so our cows always had good exclusive pasturage upon which our neighbors' animals were not permitted to forage.

Here is our cow that we raised from a calf. She has a sweet-clover appetite and we let her gratify it. She eats the tips of the stems that are tender, and we have never been troubled with the taint in the milk except in the spring. You see in the picture that our sweet-clover cow is "belly-deep" in her favorite eatable, and there are hundreds of bees all about her, but she never pays any attention to them.

Boulder, Colo.

THE BEST PAINT FOR HIVES DEPENDS UPON LOCALITY.

Two Coats of Paint that Lasted Eighteen Years.

BY W. A. PRYAL.

The question of the best paint for hives has cropped up again. It always seems to be an interesting one, though there appears to be quite a diversity of opinion in regard to the subject. I firmly believe the editor is right when he states that locality has much to do with the durability of the different paints. I have used lead paints in different forms for years; and, though a pure lead-and-oil paint lasts for several years without need of renewal, still I find that our climate causes it to calcine sooner

than is desirable. This is owing, no doubt, to the fact that our air is charged, I believe, with saline mixtures, as I am not more than 18 miles from the Pacific Ocean, and only four east of San Francisco Bay—almost opposite the Golden Gate.

The most durable paint I ever used was composed of white lead, yellow ocher, and boiled oil. I have hives that were painted two coats eighteen years ago with this mixture, and they are still in good condition. Another coat would make them look brighter, and, perhaps, put them in a way to last without further painting for, say, fifteen years longer. I have photographed one of these hives, which is shown in the accompanying half-tone. The lower story is of our native redwood. The upper one is of Oregon spruce. The first-named wood makes a good material for hives, though it is best to have it well seasoned before putting it up into hive material. Then it does not rot nearly so readily as the wood that hives are generally made of. On the other hand, spruce rots the fastest of any hive material I am acquainted with—not enough, though, to prevent its being used for this purpose. Its worst features are that it shrinks much, cracks or checks considerably, and often warps. The latter objection is shown in the rear end of the hive here illustrated. In nailing such wood together it is well to see that the "heart" side is on the inside of the hive. A couple of checks even show on the side of the hive pictured; but usually these are not very objectionable. They can be closed with putty. When I make my own brood-frames I always prefer

Oregon pine. It is sufficiently durable, and, besides, has great strength, of which the average frame made of Eastern pine is lacking.

MARBLE-TOP HIVES

This hive I have been mentioning is much out of the ordinary, as may be noticed by reference to the cut. It is a sort of "drawing-room hive"—a marble-top-table sort of affair, to put it that way. Having quite a nice large piece of marble that had been used in a printing-office that fell into my hands twenty or more years ago, and not knowing where to store it (the marble), and have it out of the way, as it was covered with printers' ink on one side, I concluded it would be just the thing for a hive-cover. It would not leak, blow off, nor become hot in summer. This cover has done service many years, and I have not found it too heavy to lift on and off.

FUEL-STARTERS FOR BEE-SMOKERS.

And I am not yet done with the aforesaid hive. I have made this particular marble-covered home of the honey-bee serve another purpose. It is this: Often I like to have my smoker start off with a good "healthy" smoke. To get up a good fire in a short time I hit upon starting a fire in an



FIG. 1.—PRYAL'S HIVE WITH A MARBLE ROOF.



FIG. 4.—MANZANITA BUSHES GROWING ON A HILLSIDE, NEAR NEW ALMADEN, CAL.

old frying pan that had several holes punched in the bottom. Some shavings or other light material is first thrown in, then comes some harder material, and, last, some solid small-sized blocks of oak or eucalyptus. When this material has well ignited it is poured into the smoker, and the bee-keeper is ready to attack any colony of bees. Such preparation gives him a fire that will last, to say

nothing of the effectiveness of the smoke that will come therefrom. I keep the fire well off the marble by providing a few brick-bats for the fire-pan to rest on, as shown in the cut.

COMBS INJURED BY BEES.

It is astonishing to see how bees will sometimes gnaw to pieces combs that contained honey. Last year I had a colony decimated for some cause, I know not what, as I had not been giving the apiary the attention that a well-regulated bee-yard should receive. It fell a prey to robber bees. When bees are properly looked after they are not so apt to play the pranks shown in the accompanying illustration.

It is possible that the colony that built the combs had left some sealed stores, and robber bees found it out and at once greedily set upon securing the abandoned honey. At such times the avaricious bees will pull the cells all to pieces in their mad rush to get at the new-found treasure. In this they resemble human beings. I have known boys who, breaking into a store or even into a cherry-orchard, did more damage while stealing the fruit than the articles stolen were worth.

MANZANITA; A WINTER-FLOWERING HONEY-PLANT.

Manzanita is a plant peculiar, I believe, to California, and is found in several varieties, all assigned to *Arctostaphylos*, of the order *Ericaceae*. The plants or shrubs are found in patches on the hills and moun-

tains, as shown in the larger cut, made from a photograph taken above New Almaden, Santa Clara Co. A peculiarity about the plant is that seldom a piece of its wood (trunk or limbs), even if only a foot long, can be found without some sort of a turn or twist in it. Perhaps for this reason it is the crookedest wood in the world.

It has a special interest to the bee-keeper of the Golden West inasmuch as it is a good secreter of nectar during the winter and early spring months. In some localities it yields considerable bee-forage.

Oakland, Cal.

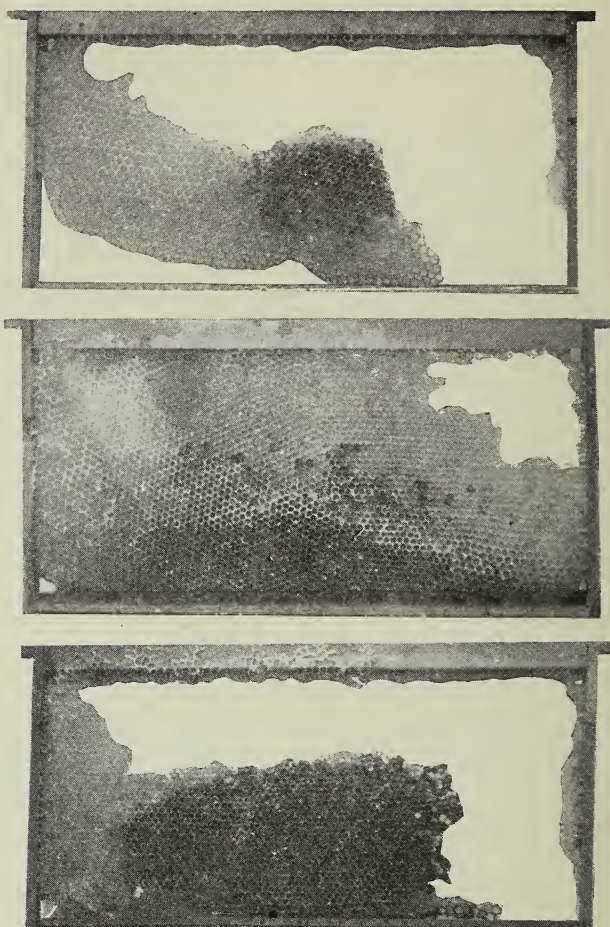


FIG. 2.—COMBS TORN TO PIECES BY ROBBER BEES.

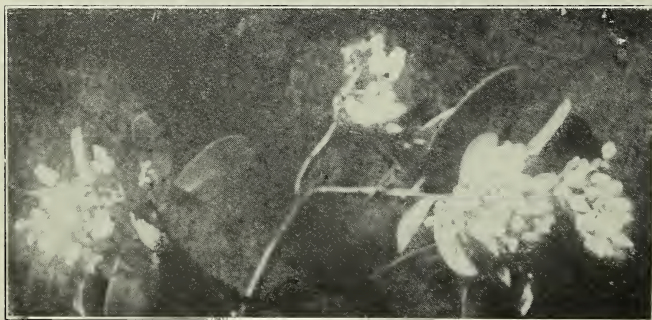


FIG. 3.—MANZANITA-BLOSSOMS.

CLEARING SUPERS WITH CARBOLIZED CLOTHS.

How to Prepare and Apply.

BY JOSEPH GRAY.

I have used carbolized cloths in the apiary for many years, and for such a variety of purposes that I for one certainly can not subscribe to the editor's statement on page 26, Jan. 1, "pretty in theory, bad in practice." I am aware that there is a difference in subduing a colony of bees with the smoker and the carbolized cloth; yet, rightly used, the latter becomes a valuable convenience—one that leaves both hands free for work.

PREPARING THE CLOTHS.

Take two pieces of unbleached calico, 20×10. I prefer them hemmed so that there will be no fraying edges to catch the legs of the bee. Having these ready, take a bottle of carbolic acid, flatten the cork, and insert it half way into the bottle so that the liquid will sprinkle out when shaken. Open the cloths, laying one on top of the other, and sprinkle them well. Press in the cork with the cloth. Don't use the fingers. Fold up the cloths, place in a tin box, and they are ready for use. Too heavy or too light a material is not so good.

We use a calico quilt on the hive, and drop a carbolized cloth against the entrance; then as we peel off the quilt we draw on the other cloth. The first one can in turn be picked up from the entrance. A third cloth may be used if desired, and the first left near the entrance. At this point comes an important difference between the use of the smoker and the carbolized cloth. With the former, one has to manipulate the bellows, and the effect may be seen; with the latter one has nothing to do except to wait, and the effect can not be seen; for, as the supers are covered, no robbers can enter.

On a cold dull day the smoke will arouse the drowsy bees quicker. On a hot day the carbolized cloth will clear every bee out of the super. I would suggest that, instead of waiting for the bees to leave the super, the apiarist use a second set of cloths and get the next hive ready. If robbers are about, the two cloths enable him to keep the supers covered except in case of the comb which is being handled.

If an apiarist has been accustomed to handling plain or unspaced frames he will feel strange when handling closed-end frames. The same rule will apply to the smoker; for one who has always handled the smoker will at first feel strange in the use of the carbolized cloths; yet for many purposes I much prefer the latter.

In transferring from box to frame hives no drumming is needed, as the carbolized cloths do the work. One can start transferring the comb while the carbolized cloths are transferring the bees. In hiving a swarm, the carbolized cloth will turn the bees in any direction required. In deal-

ing with disease, no smoker need be used, and the carbolized cloths can later be destroyed. In spring examination no robbers can enter the brood-nest, as the two carbolized cloths cover up the remaining frames. In nucleus work the carbolized cloths are sufficient. When shaking bees from combs on foundation inside of a hive, the cloths prevent the bees boiling out on the opposite side.

The sun will evaporate the strength of the solution, but a slight dampening of the cloths will restore the strength of the odor.

On a hot day every bee will be driven out of the hive if the cloths are left on too long.

Will carbolic acid taint the honey?

Carbolized cloths will not taint the honey; but there is a text-book that says, "Use a feather; dip it into the carbolic acid, and draw it along each top-bar." By this method of using carbolic acid there is certainly great risk of the honey being tainted.

Hagersville, Ont., Jan. 1.

[Eighteen or twenty years ago we tested several different schemes for using carbolic acid in lieu of smoke. While the bees would retreat from the odor of the drug, it did not seem to have a permanent effect, and they would come back. If inclined to be obstreperous in the first place, they would renew the attack as soon as the carbolized cloth was removed. Smoke, on the other hand, with a colony of this sort, has a more lasting effect—that is to say, it takes them a matter of two or three minutes to recover to a point where they will get back into their old fighting spirit. But we are frank to say that we did not try the use of carbolized cloth in the manner that you describe. We shall be pleased to renew our experiments this coming summer. In the meantime, we suggest some of our readers try out the instructions given by our correspondent, Mr. Gray, and report to us the results. So far we do not know of anybody in this country who is using carbolic acid to subdue bees. If there is any such person, will he please hold up his hand and tell us what he knows?—ED.]

SWARM CONTROL WHEN PRODUCING BULK COMB HONEY.

BY J. J. WILDER.

I should like to get a method of swarm control, when running for bulk comb honey with eight-frame L hives and shallow supers. The trouble I find is a lack of drawn combs in the spring. Mr. L. H. Scholl's method will not do, as he uses supers for a brood-nest.

Greeneville, Tenn., Dec. 21.

W. H. BROWN.

[The above letter was sent to J. J. Wilder whose reply follows.—ED.]

My method of swarm control in the production of bulk comb honey with eight-frame hives and shallow extracting-supers is as follows: In early spring, a few days before the first honey-flow, when swarming may be expected, I vent all colonies that will probably swarm by elevating the hives

from the regular bottoms, placing a $\frac{7}{8} \times \frac{7}{8}$ \times 20-inch strip on either side, on top of the regular $\frac{3}{8}$ ferring-strips on which the hives have stood during winter. This gives a vent $1\frac{1}{4}$ inches deep across the front of the hive, and a $\frac{1}{2}$ vent of the same width at the rear. The strips, of course, close the sides solidly, and allow the air to pass under the frames, only from the front or the back. A stone or block placed at the entrance for the purpose of venting the hive is not sufficient, because it does not allow a current of air to pass freely under and up through the combs. Nor is it advisable to put four ferring-sticks, one under each corner of the hive, because the weight during the season might cause the bottom-board to become warped so that it would not fit well later when setting the hive down for winter.

We have found that an eight-frame L. hive makes too small a brood-nest for our average queens; but with a regular shallow extracting-super, the frames of which contain combs built from full sheets of foundation placed on top, plenty of room is afforded. One or more storing-supers should be put above this a short time before the honey-flow.

We have no apiaries that we run solely for extracted honey; but we produce it along through our bulk-comb-honey apiaries.

In the production of bulk comb honey, at least one-third of the crop must be extracted, as about this amount is used for pouring over the comb in packing. Any which is left will supply customers who prefer extracted honey. We usually produce a little more in order to avoid having to meet this demand later by extracting from beautiful combs; so at least one-third of our shallow extracting-supers contain ready-built combs carried over from season to season. One of these is placed on each hive, next to the brood-nest, which, as stated, consists of one eight-frame L. hive and one shallow extracting-super. This hastens matters by giving the bees a chance to store without first having to build comb. The strongest colonies are given additional supers containing full sheets of foundation in case they may be needed before we get around again, which is five days later. If swarming is expected in the least when we place this super, we raise the one next to the hive which we call our "brood" super, and see that there are no queen-cells started. If there are we tear them out and mark the hive.

In ordinary seasons, with this arrangement, very little if any swarming may be expected at the beginning of the honey-flow; but if the weather should turn cold, or there should be constant rains, thus keeping the bees in confinement in their hives, they are apt to have a desire to swarm, because they have nothing else to do.

On our next round, supers are added wherever they may be needed before our return in five days again. But on each round, before any supers are added, we tip up the brood-supers to see if any queen-cells have

been started. This is quickly done; and if any preparation has been made for swarming it is easily detected and removed; for, as a rule, bees will not start queen-cells on the brood-frames near the bottom of hives thus ventilated. But if they do start cells, some will surely be found in the brood-supers.

This is not all that is done to prevent swarming; for on our rounds if we find any honey being capped in the first storing-super, it is removed and placed in the one above, and frames of foundation are inserted in its place. If the bees are storing mostly in combs in the center, they are usually placed on the outside of the super, and those less finished are placed in a central position, usually between frames of foundation which are exchanged for those where capping has been started. No combs of sealed honey are allowed to remain next to the brood-super. If all the honey in the first super is about ready to be capped, we raise it and slip the next super under it and put a bait or two in it if the bees have not already begun to work it. At the close of the flow the bees are allowed to fill all remaining supers without much manipulation.

So far as we are able, all honey is removed as fast as it is sealed and is packed and put on the market. The first honey is always stored in the darker combs, which are carried over from season to season, these being put on first, and all this is extracted and placed in large tanks; and a few days later it is in good condition to be drawn off, ready for packing bulk comb honey.

Late in the afternoon all supers containing empty combs are given to the bees at the home yard, where extracting and packing are done. By morning these are cleaned up, removed, and distributed again in out-apiaries as we visit them. If they were not cleaned up they might excite robbing, and cause trouble in removing and loading.

As soon as the combs suitable for bulk comb honey are cut out, the frames are cleaned, and full sheets of foundation put in, then they are again carried out and distributed. This process is repeated until the end of the season, when they are stored at the packing-house, ready to be put in order for the next flow.

Cordele, Ga.

SHALLOW VS. DEEP SUPERS.

BY ALFRED L. HARTL.

Many apiarists consider the style of the super of little consequence—that is, whether it is of the standard Langstroth or shallow type; but in my opinion this matter is very important. I have used both in the same apiary to determine the relative merits of each, and the best results have invariably been secured from the shallow-frame supers. When giving a medium-sized colony such a large surplus apartment as a Langstroth super at once, the bees hesitate about entering and beginning work, for they

are handicapped on account of being unable to maintain the desirable temperature for wax secretion; or if the combs are already built the bees will be slow in storing honey in them if they are cold. This is especially true when the nights are cool.

Another objection to the deep super is that it is very heavy and clumsy to handle.

Such a super holds about 50 lbs. of honey, which, with the added weight of the combs and the super itself, is too much for an average person to lift and carry around all day during the extracting season.

Again, in our locality we often have light, unexpected honey-flows of about five days' duration, and at such a time the bees will not store honey as well in deep supers as in the shallow ones, and, as a consequence, they clog the brood-chambers instead. Bees enter shallow supers more readily when the flow is light or when the weather is cool. Thus the brood-chambers are not so apt to become the storage-places for honey, provided the colony is of average strength.

I can remove honey faster from the Ideal shallow supers than from any other that has come to my notice. I have taken off as much as 100 lbs. in one minute's time.

Elmendorf, Texas.

REPORT OF THE OHIO STATE CONVENTION.

BY HENRY REDDERT, SEC.

The second annual convention of the Ohio bee-keepers was held at the Grand Hotel, Cincinnati, February 16. The following officers were elected for the ensuing year:

President, D. H. Morris, Springfield, O.; Vice-president, Frank Hammerle, Hamilton, O.; Secretary, A. N. Noble, Springfield, O.; Treasurer, Chas. H. Weber, Cincinnati, O.; Executive Committee, G. G. Lingo, Cincinnati; Wm. Schmees, Cincinnati; C. A. Brooks, Cincinnati; J. C. Creighton, Harrison, O.; Fred W. Hammerle, Hamilton, O.

Owing to the desire of the majority of visiting bee-keepers, the meeting was limited to the first day. This necessitated the curtailing of the program to "Visits to Points of Interest," which had been set for the second day.

The members engaged in some very spirited discussions, owing to the fact that this convention was the first State meeting since the one at Toledo in 1888. Interesting and instructive papers were read by Mr. C. H. Weber, on shipping comb honey to market. Mr. Chalon Fowls' paper was entitled "How to Increase the Demand for Honey by Building up Trade at the Groceries;" Mr. E. R. Root, "Modern Methods of Extracting Honey," and "American Foul Brood Differentiated from European Foul Brood." The paper from Mr. J. G. Creighton, of Harrison, Ohio, entitled "Foul Brood in and around Cincinnati," gave an account of the history of the disease from the time it started, twenty years ago, up to the present.

At the evening session Mr. N. E. Shaw, Chief Foul-brood Inspector of Ohio, held his audience spellbound by a chart indicating the alarming situation of foul brood in Ohio, which showed that practically one-third of the State is infected with the disease. He said, however, that the map could be greatly changed if sufficient funds were forthcoming by an appropriation from the State legislature. Bee-keepers from the entire State should assist him by urging their Senators and Representatives to vote for the necessary funds required for his valuable work the coming year.

Mr. E. R. Root's stereopticon lecture, "The Value of Bees in Fertilizing Fruit-blossoms," was very instructive, both to bee-keepers and horticulturists. He showed how these two industries are partners, and that one can not exist without the other.

During the day's session the coöperation of bee-keepers with farmers to preserve sweet clover, and promulgate its culture for the benefit of both, aroused a great amount of interest.

Red-clover queens and how to get the most wax out of a given quantity of cap-pings was explained in detail by Mr. Root.

Taken as a whole, the convention was a success. The next one will be held in Springfield, Ohio, Feb. 15 and 16, 1912.

Eighteen new members were enrolled on the membership list.

TREASURER'S REPORT.

Receipts to date, \$15.00. Disbursements, \$9.65. Balance on hand, \$5.35.

BULK COMB HONEY MORE EASILY SOLD THAN SECTION HONEY.

BY J. L. YOUNG.

I have been watching the discussion of the relative merits of bulk comb and section honey. I sell to consumers, and I can dispose of ten pounds of bulk comb honey as easily as one pound of section honey, getting 15 cts. per lb. for the bulk comb and twenty cents per section.

At the Agricultural College here, some experimenting has been done to determine the difference in the cost of producing bulk comb and section honey; and it has been decided that the former can be produced at 12 cts. per lb. as easily as the latter at 20, and when producing bulk comb honey the swarming tendency is almost eliminated too. Swarming is the bane here of the bee-keeper who tries to produce section honey.

When I first started to sell honey, everybody asked whether the honey was pure, as no one had ever heard of a honey-extractor. Then they wanted to know how I could sell it so much cheaper than the section honey. When I explained that I had a machine that threw the honey out of the combs, so that I could give them to the bees to refill, thus saving them the trouble of building new combs each time, my questioners would say, "Oh! so you have a separator." I had no further trouble in selling extracted honey.

Manhattan, Kan.

EUROPEAN FOUL BROOD.

BY H. HARLEY SELWYN.

I hardly care to take issue with Mr. Cavanagh on the subject of European foul brood and the curing of it, as he has had years of experience while I have had but one; but I should like to make a few remarks as to our work with the disease this past season and the methods we tried to prevent its spreading.

Mr. Cavanagh's statement as set forth March 1, p. 139, that, during a honey-flow, combs of brood and honey from an infected hive which has been shaken can be placed over a healthy colony, the queen of which has been confined to the lower body, and that no danger of spreading the disease will result, seems to me rather hard to believe in view of the following, which is our experience in the matter.

I would mention, first, that we had never seen the disease, and it had gained considerable headway before we realized that there was something the matter with the brood in many colonies. This, of course, started an investigation as to the source from which it came, and we were immediately suspicious of some box hives we had bought, and the contents of which had been distributed among a number of the weaker colonies early in the spring to help strengthen them. A hasty inquiry as to the appearance of brood affected with European foul brood confirmed our fears, and a visit to the apiary some twelve miles distant, whence the box hives came, showed it to be also rampant there. Let this be a warning to those who contemplate buying bees in box or any other kind of hives. Never again shall it occur in the writer's camp. The saying goes that one's experience is often dearly bought, and we certainly paid dearly for those three box hives, as, I feel sure, they were the means of our losing hundreds of dollars during the season.

We understood that shaking is a sure cure, and proceeded to put it into practice. We shook the bees on some supers of nicely drawn extracting-combs which we had on hand from the previous year. This was done during the main honey-flow so that the bees were never in need of stores. When we shook a colony and got the bees and queen nicely settled in the new brood-chamber, there was always the question of what should be done with the brood and honey just taken away, and the idea occurred to us to place it *over* the new hive with a queen-excluder between, letting the brood hatch out that would, and, when the remaining cells were filled with honey, to remove it and extract, and thus (as we thought) save that brood and honey. But when we removed these supers some weeks later, and looked at the brood in the new combs which we supposed would be fed with nothing but new honey from the fields, and have thus escaped disease, it was just as bad as if not worse than that in the original combs.

There was no remedy but another shaking, although by this time the colonies were beginning to show the effect of lack of increase, and our supply of drawn comb was seriously depleted, but out the bees went again, this time on wax sheets to "work or starve." This time they went to work, apparently with renewed vigor at having left behind such a hopeless task; and in every instance where they were entirely isolated from their former abode, and no portion of it was left hanging over their heads, as the sword hung over the head of Damocles, brood-rearing was once more carried on successfully, and we had the satisfaction of seeing the larvæ pearly white and symmetrically graduating from the tiny egg to the full-grown form. Well, so much for placing foul-broody combs over clean hives. I hardly think I would do it again under any conditions, not even if there were a yield of 25 pounds of honey a day.

Mr. Cavanagh also spoke of putting out extracted combs, which had previously contained foul brood, for the bees to clean up after brood-rearing had stopped in the fall, and said that no bad results followed. Why would not this honey be the means of spreading the disease again the ensuing spring if not all used during the winter?

Ottawa, Ont., March 13.

A PLURALITY OF QUEENS IN ONE HIVE.

How it May be Accomplished by a Scheme of Two Entrances.

BY GEO. W. RICH.

Will bees swarm with two or more queens in one hive? If not, is there any better way to control swarming? Here in Tennessee bees will swarm almost as much in August as in the spring; and the reason for it is, one would think, because there is scarcely any honey from June 15 until August.

Well, I want to tell you how I fixed some colonies last year, and they did not swarm. I am so sure it is a success that I shall work it on my whole apiary this year.

The first thing to do, 15 days before the bees are ready to swarm, is to select the queens from which we can have a supply of ripe queen-cells, or virgin queens ready. Now, when you find a colony preparing to swarm, take a hive-body filled with frames of empty brood-combs or foundation. Remove the old body from the bottom-board; place an empty body, containing one frame with some brood, in its place. Shake nearly all the bees in front, and be sure the queen goes in. Next put a wire screen on top and set the old body containing brood on top of this. Now on top of this old body set another body or super, just which you like, with an entrance cut in the bottom in front. This is to be the entrance for the bees in the old body. Now is when you want the queen-cells or virgin queens to give the bees (or brood rather) in the old body and above the

wire screen. The heat of the bees below will keep the brood warm.

As soon as the queen upstairs begins to lay, remove the wire screen and put in its place a queen-excluder. The secret of keeping two queens in a hive is the two entrances.

I have tried three queens in one hive with queen-excluders when all the bees came out of the same entrance; but as soon as the honey-flow stopped, two queens disappeared. At another time I tried four queens in one hive and all were killed.

But when hives are equipped with two entrances, both or all queens are left, or at least were last September. Previous to that time they had gone through a month and a half of honey-dearth. The bees worked at both entrances as strong as any other colonies at their one entrance. I have them built up four bodies high.

I am sure that having two entrances is the secret of the two queens remaining in the one hive. One thing, they work stronger at either entrance than the best colony I have in the yard.

If any one wants a bigger thing than this, just give the lower queen two bodies in place of one, and as many as you please on top.

Trezevant, Tenn.

[We don't quite see *why* the scheme of two entrances should make the bees or the queens tolerate each other any better than one entrance unless each hive-body with its separate entrance has its own cluster of bees, each with its own queen. The plan is worth trying, and we should be glad to have our readers try it and report.—ED.]

FOUL BROOD IN CALIFORNIA.

A County Ordinance to Prevent Diseased Bees from being Shipped in.

BY OTTO LUHDORFF.

Tulare County recently passed an ordinance which seems to have a good effect in keeping diseased bees out. The ordinance had been in force only a few days when a party with some 250 colonies came from an adjoining county. The bees were not yet unloaded when he heard of the new ordinance. He did not unload, but turned his teams around and moved back to his home county. We did not know whether his bees were diseased or not.

I inclose a copy of this ordinance. I believe it might be adopted to good advantage in many places, and it would certainly be a benefit to many bee-keepers.

Visalia, Cal, March 8, 1911.

An ordinance enacted for the purpose of eradicating the diseases of bees; to provide for the care of bees, and for the cleansing or destruction of bee-hives containing disease, and to provide for the proper inspection of bees and bee-hives in the county of Tulare.

The Board of Supervisors of the county of Tulare, State of California, do ordain as follows:

SEC. 1. It shall be unlawful for any person, firm, or corporation in the county of Tulare to keep bees in boxes or stationary frames or immovable-comb

hives for more than thirty days after written notice, served upon said person, firm, or corporation by the Inspector of Apiaries of said county, or his deputy, to transfer the said bees from such boxes, stationary frames, or immovable-comb hives to suitable and legal frame hives; provided that no removal shall be required between the first day of November and the first day of April of any year. Every person who owns, controls, or has in charge any boxes, stationary frames, or immovable-comb hives containing bees, who neglects, refuses, or fails in any manner to remove or cause to be removed the said bees from the said boxes, stationary frames, or immovable-comb hives within the time specified in this section after the service of the written notice herein provided for, shall be guilty of a misdemeanor; and upon such neglect, refusal, or failure so to remove the said bees, the Inspector of Apiaries, or his deputy, shall have the right and authority to burn, or cause to be burned or otherwise destroyed, all of the said boxes, stationary frames, or immovable-comb hives, together with all the contents therein, including the bees.

SEC. 2. It shall be unlawful for any person, firm, or corporation to ship, express, haul, or transport in any manner into this county, from any other county or place, any empty second-hand hives or parts of hives that have previously had bees therein, or any slumgum or other refuse material from bee-hives. Any and all such hives or parts of hives or slumgum or other refuse material from hives that shall or may be shipped, hauled, expressed, or transported into this county shall immediately and without delay be reshipped to the owner at his expense, or the same shall be destroyed by the Inspector of Apiaries; provided that any person, firm, or corporation who may desire to ship, express, haul, or transport any second-hand empty hives or parts of such hives into this county shall file with the Inspector of Apiaries of this county at least five days before said hives are received into this county at least two affidavits showing that all of said hives or parts of hives have been boiled under close steam pressure fully thirty minutes or more. On the boiling of said hives and parts of hives, and the filing of said affidavits, said hives and parts of hives shall be admitted into this county. Any person, firm, or corporation violating any of the provisions of this section shall be guilty of a misdemeanor.

SEC. 3. It shall be unlawful for any person, firm, or corporation to move or cause to be moved in any manner any bees into the county of Tulare from any county not having a duly authorized inspector of apiaries, unless written notice of the removal of said bees be given the Inspector of Apiaries of this county within three days after they have been received by such person, firm, or corporation in this county. Any person, firm, or corporation who violates the provisions of this section shall be guilty of a misdemeanor.

SEC. 4. It shall be unlawful for any person, firm, or corporation to ship, haul, or transport, from this county to another, any empty hives or parts of hives without first obtaining a written certificate from the Inspector of Apiaries, showing that all of said hives and parts of hives are free from disease. Any person or corporation violating the provisions of this section shall be guilty of a misdemeanor.

SEC. 5. It shall be unlawful for any person, firm, or corporation to move or caused to be moved in any manner into the county of Tulare any bees or empty hives, or parts of hives, that have at any time had bees therein, from any point within thirty miles of a known seat of infection of foul brood, American foul brood, black brood, or any other disease which is infectious or contagious in its nature, and injurious to bees, their eggs, or larvæ. Every person, firm, or corporation who violates the provisions of this section shall be guilty of a misdemeanor; and the Inspector of Apiaries of this county is hereby authorized and empowered, upon such violation, to burn or otherwise destroy or cause to be burned or destroyed, any and all such hives and parts of hives and their contents, including the bees.

SEC. 6. Any person, firm, or corporation found guilty of a misdemeanor under this ordinance shall be punished by a fine not exceeding three hundred dollars, or by imprisonment in the county jail not exceeding one hundred and fifty days, or by both such fine and imprisonment. This ordinance shall take effect immediately after publication.

Passed and adopted at a regular session of the Board of Supervisors of the county of Tulare, State of California, this 9th day of February, 1911.

Heads of Grain

from Different Fields

Ten-frame Hives should be Wide Enough for a Follower.

The tendency of bee-keepers seems to be in favor of the ten-frame hive; and, if I am correctly informed, that hive is made without a dummy, follower, or division-board. Why are the ten-frame hives thus made? Is not a follower or division-board as important in ten-frame as in eight-frame hives?

A hive of any kind without a follower or division-board would be to me an intolerable nuisance; and if we are going to discard the eight-frame for the ten-frame hive, why not make them with followers or division-board like the eight-frame hive?

My Muth Ideal bee-veil gives me the headache, and makes me dizzy. What is the cause?

While looking into one of my hives I noticed one cell which had two eggs in it. Does a good queen ever lay more than one egg in a cell? The queen is a Banat? J. T. L.

[In view of the fact that the ten-frame hives are being more and more used, the width has been altered so that there is as much room for the dummy and follower as in the eight-frame hive.

In case of the bee-veil, we presume that the wire cloth happens to be just such a distance from your eyes as to cause confusion. If you could arrange to have the wire cloth closer, so that the muscles which control the focusing are not constantly fixing the focus on the wire cloth, you would have no further trouble.

One cell with two eggs in it would not necessarily indicate a poor queen. Sometimes a good queen, being somewhat cramped for room, will lay more than one egg in a cell; but if there is very much of this kind of work when there is still plenty of unoccupied room in the hive, we should say the queen was not up to the standard.—Ed.]

Clover Honey; 320 Combs of it Too Thick to Extract.

I have about 40 eight-frame Dovetailed hives filled with very thick clover honey, all sealed. I waited until cold weather, thinking I could extract at my leisure; but I find that, if I warm the honey over a stove until it will extract, the combs (many of which are new on full sheets of foundation, and wired) will break, and can not be pulled from the comb-basket of the extractor. Can you suggest any remedy or any thing helpful? If I keep it until warm weather will it work any better? or will it then be candied in the combs?

Wells Bridge, N. Y., March 20. L. C. JUDSON.

[Your difficulty comes about from the fact that you placed your Dovetailed hive-bodies, filled with new combs and sealed honey, right over the stove. The heat would be too intense near the bottom of the combs, and insufficient near the top. Moreover the outside surfaces of the combs would be warmed up while the centers would be cold. In cases of this kind the combs should be stored in a warm room, and kept there for at least 12 hours, and 24 would be better. The temperature of the room should be somewhere about 75 or 80.

Then, again, when you come to extract, turn the reel very slowly, extracting one side of the combs partially, and then the other side, and extract that partially. Increase the speed of the extractor a little; reverse, and so on until the combs are fairly clean. With new combs you may have to turn the reel longer, and use a moderate speed rather than a high one, for a short time.—Ed.]

More Directions for Carbolic Cloths.

In answer to the inquiry made on page 26, Jan. 1, regarding carbolic acid for quieting bees, I submit the following report: In "The British Bee-keeper's Guide Book" directions are given for one part of Calvert's No. 5 carbolic acid to two of water; but I prefer at least equal parts of each, and sometimes more acid. My experience of twenty years in the use of the carbolic solution has proven that the

other mixture is not strong enough. Since having used the carbolic cloth, the smoker is almost a thing of the past with me.

The cloth should be cut the size of the top of the hive, or larger, and hemmed. After wetting it thoroughly with this solution, and wringing it fairly dry, it should be placed, when not in use, in a covered tin box, ready to be used when needed. By way of caution it may be well to add that care must be exercised in wringing the cloths or the acid may burn the hands. Some bee-keepers perforate the cork of the bottle containing the solution, and sprinkle the cloths.

When ready for use, pull the quilt from the top of the hive, and at the same time replace it with one of the cloths. The bees will soon run down into the lower part of the hive. If the cloth is left on too long, however, it will excite them too much, and will sometimes drive most of them from the hive. A little practice will be required to accustom one to the use of carbolic acid in this way.

Wallington, Surrey, England. C. LONGLEY.

[If the solution of carbolic acid has to be strong enough to eat the skin off the hands it would seem that a smoker would be preferable. Would it not be better to follow the directions given in Cowan's book, which provide for a solution not so strong but that the hands may be used to wring out the cloths? It may take longer to do the work, but it would be safer. After all, it is our opinion that most bee-keepers will prefer to use a smoker.—Ed.]

Borrowing Bees for Cell-building.

I have kept bees for the last 25 years, and the longer I keep them the more I love them. I have 36 colonies in the cellar; and if all is well I should like to increase to 100 in the spring and summer by the Alexander method, buying young queens and introducing them. Or, if I find time, I may try to raise them from my best queens. Still, I feel convinced that I need fresh blood in my apiary, so I will buy some queens.

Please explain "borrowing bees for cell-building," of Alexander's Writings on Practical Bee Culture, page 75.

A TEMPERATURE OF 60° BELOW ZERO.

What do you think of bees which wintered in fine condition when kept for six consecutive months in the cellar with the temperature outside sometimes as low as 60° below zero—average consumption of stores, 12 lbs.?

Valley, Ont., Feb. 13.

JAMES M. MUNRO.

[The term "borrowing bees" was originated, if we are correct, by the late E. L. Pratt, better known as "Swarthmore." He simply shook off four or five frames of bees into a box with wire-cloth covering, and confined them there for a few hours. At the end of that period they could be used for starting cells. After the cells are started, the bees are returned to their original colony; hence the term "borrow."—Ed.]

Size of Bees in Old Combs.

On p. 88, Feb. 15, I read with interest the article regarding the melting of old combs when the cells have become small from age, so that the brood is cramped for room. I dare say that this is true in some cases, for two years ago my father and I found a colony of bees in an old oak in the woods. I was much surprised to find that the bees were very small, and made the remark that they had been there for a long time.

Upon examination I noticed that the combs were very old. I cut them from the tree and placed them in the frames from a hive that I had brought with me. After the bees had been smoked into the hive and had been taken home, frames of foundation were put between the frames of old comb. In due time bees hatched from the combs that were built on the foundation. These were about a third larger than those from the old combs.

Birmingham, Mich.

OTTO A. PARK.

[Many of our best authorities do not believe that old combs hatch out any smaller bees than new ones. Bees appear to be smaller under some circumstances than at other times. When the weather is a little cool, bees look much smaller than when it is warm and when they are engaged in the business of gathering or evaporating nectar in the hive. We rather doubt whether the change of combs made any difference in the size of the bees.—Ed.]

The Importance of Having Hive Lumber Cut Heart Side Out.

Mr. Scholl's method of repairing old hives and supers that have warped, as outlined on pages 90 and 91, Feb. 15, and to Mr. Wesley Foster's diagram of dovetailed hives on p. 355, June 1, 1910, I would say that I have no criticism to offer; but I should like to make one suggestion. Mr. Foster has left out one essential detail. He did not say that the hives should be made with the heart side of the lumber on the exterior. If the manufacturers of hives would take the trouble to make them with the heart side of the lumber out, and if afterward the hive were kept well painted, there would never be any warping as shown in Fig. 2 B, p. 355, June 1.

All lumber warps from the heart. For example, a floor made of boards with the heart side up is always smooth; but when the sap side is up it is uneven because the edges are up.

There would be quite a saving of time in putting hives together if the suggestion made above were followed. All the joints of my hives are put together with thick white-lead paint, thus rendering them water-proof. Perhaps I am too much of an old fogey in this matter, but I think it pays in the long run. I have been a wood-worker all my life, and retired, not because I have a barrel of money, but because of poor health. I took up bee-keeping as a fad, and it has grown to such an extent that it keeps me moving most of the year.

Red Bank, N. J.

C. H. ROOT.

[We believe that most manufacturers attempt to make their hives so that the heart shall be on the outside of the hive when put together. Sometimes in the rush of the season the workmen may get careless and put the hand-holes and the rabbets on the wrong side of the boards.—ED.]

Making Increase by Placing a Queen in an Upper Story of Empty Combs

Please give me your opinion of the following plan for increase (or dividing) and requeening. In early spring, when brood is well started and queens can be reared, place a queen and empty combs in an upper story, and all the brood in the lower story, with an excluder between them. At the same time, place two ripe queen-cells in the lower story with brood, one in the protector and the other in a long cage with candy. If the one in the protector fails to return after a flight, the other can be liberated. Would the virgin below be accepted? and could she get through the excluder to the laying queen above? And then in order to requeen the story above, about two weeks later (May 15), divide, catching the old queen, and then place two ripe cells the same as in the lower story?

If you think this plan advisable, please give the earlier dates on which this operation could be undertaken. Also state when it is practicable to begin feeding in spring. Would the center of the ordinary unflavored chocolate candy be good to put in a cage to feed a queen?

Detroit, Mich., March 5.

W. S. VAN HORN.

[Your plan would probably work providing it were warm enough; but we certainly would not advise doing this in "early spring," as you suggest, as you would be likely to lose a good deal of brood, and disorganize the colony generally. The virgin below might or might not be accepted. A good deal would depend on conditions; but in early spring we would imagine that the laying queen would come as near the cluster as possible. If she should occupy the lower edge of the upper set of frames, the probability is that the virgin below would be killed; and it is also possible that the laying queen above would be sacrificed, and the virgin allowed to become the reigning mother. A little later on in the season, when the colony has become very powerful, you could put on an upper story of empty combs, as suggested, and the virgin in the lower section and the laying queen in the upper section would probably both be allowed to reign supreme. In general, we may say it is bad policy to work for increase by any plan in the spring in northern climates.

You can begin feeding in the spring at almost any time when the bees can fly freely, but we would not advise it before. It is always better, however, to give combs of sealed stores in the spring, said combs being taken from a reserve supply kept for the purpose. We always make it a practice here in Medina to keep extra combs of stores over, to give out in the spring.—ED.]

Satisfying the Desire to Swarm, yet Preventing Increase.

Not having nor wanting many colonies, and being unable to procure queens, what would be the objection to the following plan?

When a colony is pretty strong, and directions have been followed under head of "Increase," page 284, A B C and X Y Z of Bee Culture, would it be advisable, after queen-cells in the top story have been sealed, to cut out all cells but one and put the frame with this one below, placing the old queen in the original hive above with the newly hatched and hatching bees, and leaving her there as long as her laying capacity is good? If plenty of room for surplus were given, the only objection I can see is that, when the young queen hatches below, a swarm might go off with her. But would this be likely, with the old queen excluded, and unsealed brood in the lower *hive*? As an experiment would you advise it?

Shan-hai Kwan, China.

J. F. MOORE.

[The modified form of Alexander increase that you propose would work, we think; but you would get far better results by using a laying queen in place of cells or virgins. Mr. Alexander recommends laying queens because, with virgins or cells, so much valuable time is lost that it defeats, to a very great extent, the very object of making increase in this way.—ED.]

Alfalfa and Bee-keeping in New Mexico.

Mr. Root.—In your issue for April I you have an article headed "Drawbacks to Bee-keeping in New Mexico; the Future of Alfalfa very Uncertain." We have always looked upon your magazine as one which endeavors to state facts; but the heading which you give the article by Mr. Metcalfe is entirely misleading. He refers to the condition existing around Mesilla Park. This condition does not exist in all sections of New Mexico; in fact, in the Roswell district there is alfalfa which is twenty odd years of age, and it is still yielding large crops. There is plenty of water there from the artesian sources, and no chance for the uncertainty of the future of alfalfa. There are many colonies of bees, and at least fifteen of the citizens there make their living from bees alone. Over fifty-two keepers of hives are around Roswell.

New York, April 5.

H. ROBINSON.

Swarms Entering Empty Hives; the Record Broken Again.

I can beat Mr. Calvin C. Hunter's bee-story somewhat, page 561, Sept. 1, 1910. The bees died off very badly during the winter of 1909, but I know of 31 swarms going into hives around here. Mark Hurd, of Marshall, superintendent of the apianarian department of the Calhoun County fair, had 10 colonies in the fall of 1909, and he lost all but two, leaving eight empty hives. He just shook out the dead bees and left the hives as they were. In June a neighbor asked him if he would come over and have a stray swarm for him, for they were afraid of it. He did so, so that he had only seven empty hives left. In June stray swarms came and filled all of the seven empty hives, and all made a full super of honey apiece. He said he did not let either of his old colonies swarm, and most of the bees must have come for miles.

Marshall, Mich.

G. F. PEASE.

The Sour Smell from Aster.

On page 150, March 1, more information is requested regarding the source of a sour odor from the hives. Under my own observation it has been mostly from asters. In Shenandoah Valley, in Virginia, where I lived for fourteen years, there were many acres of the small white aster, locally known as iron-weed. There were several seasons when the bloom was in sheets, affording a good yield of surplus. The honey was a very light amber, of fine quality, and was considered next to white clover. At such times a strong odor could be noticed when walking among the plants, which was distinctly sour in the vicinity of the hives. I have never noticed this except when the asters were yielding nectar. My Italians have seldom done much on goldenrod when any thing better was within reach. A "knock-you-down" smell about the hives is often noticeable, too, when buckwheat is yielding plentifully.

Alamagordo, New Mexico,

BURDET HASSETT.

March 16.

Putting Foundation Under the Brood chamber to Prevent Swarming.

What is your opinion of the following method of running for extracted honey? Will it prevent swarming? What would be the objections to it apart from the trouble of lifting? I propose to put a hive with frames of foundation under the brood-chamber as soon as it is nearly filled with brood; then, when the queen has gone down to the new chamber, repeat the process—lift off both of the hives and put a third (with foundation) underneath. Am I right in supposing that, as brood hatches near the top, the cells are filled with honey, and so the queen is gradually driven down? I use ten-frame hives—British standard frame. It looks as if it would prevent swarming; but could I get as much honey as by putting supers with foundation in frames above?

Alfriston, England.

A. G. WHITE.

[In all probability the queen would be very slow about going into the lower chamber. Her tendency is rather to go above than below. We would rather doubt also whether the bees would build comb from foundation as readily when it is below the brood-nest as from above. No, we do not think your plan would work very satisfactorily unless the weather were very warm and the colony very strong. If you desire to get extra combs or increase, follow the Alexander plan of increase, the same as the one referred to in the letter of Mr. J. P. Moore, on preceding page.—ED.]

Feeding in the Spring Very Successful.

As my experiments with the Doolittle brushed swarms have proved to be very successful, and nothing has been said of the importance of feeding in connection with this plan, I thought possibly my experience along this line might prove to be of interest.

On April 23 I put on a full-depth upper story with frames filled foundation, and placed two frames from below in the upper story. May 29 the colonies so arranged were booming, and some had sealed queen-cells, so I brushed the strong colonies and gave the brood from these hives to the weak colonies. Everything looked promising; but by June 11 the bees were on the verge of starvation because of the unfavorable condition of the weather. Now comes what I think is the most important part of the whole plan. I put an Alexander feeder under each hive and fed a very thin syrup, about three to one, and kept this up until the honey-flow started.

At this writing, July 20, I have taken off 52 pounds of section honey per colony, spring count, and the prospect is good for nearly as much more. This plan does away with drones, as I have not seen any flying for a long time. While I am a great admirer of Mr. Doolittle, it seems to me that too little space is given in the bee-journals to the question of feeding. If the bees are fed in the spring they will get the honey when it comes.

Sag Harbor, N. Y.

L. WARREN SHERMAN.

[In case of a shortage of stores, there is nothing to do, of course, but to feed in the spring; but if enough honey or sugar syrup can be fed in the fall to last until the main honey-flow begins again in the early summer, it has been found that spring feeding is only a waste of time and bee energy. When weather conditions are unfavorable, as reported by our correspondent, that is another matter.—ED.]

Honey-bees Visit Roses.

Under the heading of "Nectarless Flowers," page 98, Feb. 15, Mr. John H. Lovell attacks another writer whose article appeared on page 680, Nov. 1. I am not capable of discussing flowers with Mr. Lovell, but feel that I ought to defend the other writer so far as I think he is right. There is not the least doubt in my mind that the saw honey-bees working on wild roses; in fact, I have never known the blooming season to pass without noticing real honey-bees gathering pollen freely from wild roses. Possibly roses do not secrete nectar; but Mr. Lovell evidently doubts that bees visit roses under any circumstances. If he were here in Madison Co., Alabama, during fruit-bloom I could show him bees working on plum-blossoms; but, of course, bees are very much influenced by conditions, and conditions vary in different localities.

Huntsville, Ala.

H. M. WEBSTER.

Our Homes

By A. I. Root

For he shall give his angels charge over thee, to keep thee in all thy ways. They shall bear thee up in their hands, lest thou dash thy foot against a stone.—PSALM 91: 11, 12.

The above is not only a wonderful promise but it is one of the most *precious* promises in God's holy word, and it has been a comfort and encouragement to thousands for ages past; and the question naturally arises as to *whom* the prophet was referring when he used, we might almost say, such extravagant language. Happily the very first verse of this justly celebrated 91st Psalm answers the question most fully. It reads, "He that dwelleth in the secret place of the Most High;" and that also celebrated *first* Psalm makes the meaning still plainer. He that "meditates" on God's holy word, "both day and night," shall surely have guidance and protection from on high.

For several months past I have had letters from many good people remonstrating because of my criticisms in regard to the *Woman's National Daily*, and its editor's way of doing business. Several have sent me clippings, evidently inferring that I have not been reading said daily. Permit me to say here that I have at least "run over" almost every issue since its start, and, as you may remember, I for a time gave it excellent notices in connection with these extracts; but finally I felt sure I should not be doing my duty if I did not warn the public at large against sending the institution any more money. Some great and good man, I forget now just who it was, but, if I remember, it was a great preacher who said, as they found a drunken man in the ditch, "But for the grace of God, there lies —" calling himself by name. Well, when I have been following Lewis of late I have often thought "But for the grace of God there is where A. I. Root might be now." Please do not think I mean to boast, dear friends, for God knows I have nothing to boast of; but I want to go back and give you a little bit of history to show you how the loving heavenly Father sent kind friends in answer to prayer to keep my poor erring footsteps from being "dashed against" many a financial "stone." I told you not long ago of the advice an old money-lender gave me when I was about to go into my first business venture, and of the way I surprised him and my old father when I decided not to borrow any money after all. Well, in my Home paper for March 15 I also told you how I was helped out of a financial trouble in answer to prayer; and I want to give you here one more little story that I have often thought of when watching friend Lewis through his many speculations.

It happened after I had built up a pretty large business, and was astonishing people with the growth of our industry; in fact, I

was *myself* getting a little excited to see how my many projects were prospering, and I became a little careless about making payments, as my friends had a right to expect one who made the profession I did *should* make them. The timely admonition came from the cashier of our Medina bank who had always been a firm friend of mine, even if I did not always take his advice. He took the trouble to write me a letter, and I am going to give the contents of that letter here as far as I can remember it, for I feel sure such a letter is needed, possibly, by a great number of young men *just now*—say young men who are for the first time getting into the whirlpool of great business enterprises. The letter was something like this:

Dear Mr. Root:—This is a friendly letter and not a business one; and in view of the fact of the large amount of interest money you have been paying our bank for years past, as an officer of the bank I might come under criticism for driving *away* business. I write a letter because I want time to think of what I say, and because I want you to take time to read carefully and consider what I am about to write, whether you take my advice or not. I want to remind you that your friends and people at large are getting a little uneasy about the way you are branching out and taking up so many new lines of business. So long as you have your health, and every thing goes well, you may come out all right; in fact you seem to have done so thus far; but would it not be wisdom and prudence to hold up just a little until you have a little money ahead, say, for the proverbial rainy day? Another thing: As you know, I am not a member of any church, although I am permitted to have a class in the Sunday-school, and I greatly enjoy our teachers' meetings. Your religious experiences are attracting a good deal of attention just now, and any kind of financial failure would injure the cause you and I hold most dear—more than *you*. I fear, have any idea of. Reflect, I beg of you, that your teachings have already gone through that journal broadcast over the world to at least a great extent. Dollars and cents are but a drop in the bucket compared with the keeping of your good name above reproach before the outside world. Now, my good friend, I know you will excuse the above, and I think you will excuse me for going a little further and saying, that, as you are always pushing some new hobby, you make your *next* one a cur: all of outgoes until you have a little money ahead in the bank instead of being all the time crowded, as you have been for some time past.

As ever your friend,

ROBERT McDOWELL.

I replied briefly something as follows:

Dear friend Robert:—I don't know how I can thank you enough for proving yourself a veritable "friend in need," unless it is to tell you to keep watch and see how well I take your very kind suggestion.

A. I. R.

I have reason to believe Robert and the pastor of our church had talked the matter over before that letter was written; for, shortly after, I received a letter from Rev. C. J. Ryder, now of Stamford, Conn., which read something as follows:

Dear Friend A. I. R.—Robert writes me, "A. I. R. has now \$10,000 in our bank, and all his bills paid up ahead." I want to congratulate you.

Your old friend and pastor,

C. J. RYDER.

Now I want to tell you that that "turning about" in my business habits was not an *easy* thing. At times I just had to shut my teeth and say no to every thing that came up; but I soon found that something ahead in the bank enabled me to do many things I had before been unable to do. In fact, Robert mentioned it in his letter. A cargo of lumber, for instance, was offered at a low figure if moved and paid for at once;

or a carload of printing-paper for our journal. In short, the lesson I learned in consequence of that friendly letter was more far-reaching, away out into the future, than any one can measure; and I hope and pray that the letter may prove a kindly warning to other young men as it was to me at that time, years ago. Truly, a good name *is* rather to be chosen than great riches.

Did Lewis have any such kind friend to advise him to let "well enough alone" when he was already doing well? I felt sorry to see him, even several years ago, use so much space in blaming others, even our government officials. All in all, I think this is a pretty good world to live in; and I think our government, even our postal department, means to be, as a rule, fair to all; and if the people *continue* to demand it, we shall soon have parcels post and these other things. That good old book says, "When a man's ways please the Lord he maketh even his enemies to be at peace with him," and I have found it true; but sometimes we have to *wait* quite a while for said "enemies" to get around to *recognizing* their friends.

High-pressure Gardening

By A. I. Root

"HIGH-PRESSURE GARDENING" DOWN IN FLORIDA DURING A SEVERE DROUTH.

We have had no rain since the first week in January up until about the middle of March—something like a nine-weeks' drouth, and about the most severe dry spell recorded at this season of the year for many years past. Neighbors Rood and Dr. Braymer, with their great artesian wells, got along very well; and where I "borrowed" the overflow from these wells, as I have told you about, I got along very well growing sprouted oats and other green stuff for the chickens; but in my lanes, where we have no water, the oats never came up; or after they were up, they withered and dried up under the scorching March sunshine. There were other things, however, that had got their roots down into the ground water that is always found in this region four or five feet below the surface, and these kept growing right along, seemingly oblivious of the dry weather. The mulberries particularly have been all along furnishing the most juicy and delicious fruit. Just before getting dead ripe they swell out and fairly glisten in the sun, seeming full to bursting with moisture. Why, one of these large heavily laden trees must pump up daily an almost incredible quantity of water. To-day, March 27, they are taking so much of that spring in the cellar that there does not seem to be any in the pipes for poultry, and we are having to carry water again for the chickens. But it is not the *water* alone that gives the mulberries such a vigor of growth, for very likely the poultry drop-

pings for two or three years past have had much to do with it; and right where these trees stand is where Wesley has sown oats, raking them in for the chickens to scratch out, until the ground is in the highest state of tilth.

In our May 15th issue for last year I wrote up the Northey blackberry at considerable length. At that time the vine or mound of vines had never failed to give a crop; but this spring, on account of the severe drouth we have had, the crop on my neighbor's vines is pretty nearly a failure. Our own, on plants set out right in fruiting time last May, are very much better;* and our neighbor Raub, who carried water for his plants, has great luscious berries, and much earlier than those I have mentioned. His also had the poultry manure, for he too, as you remember, is a "chicken man." This severe drouth has enabled us to demonstrate most conclusively that watering pays on almost every thing.

As it is a big task to pump and carry water by hand, we have been discussing either a windmill or a little pumping-engine. The windmill saves the expense of gasoline, it is true; but when you consider that you must have a tank to hold water when the wind doesn't blow, it is a question which is better and cheaper. Another thing, the windmill must be out in the weather the year round, and take its chances, while a very small engine which would supply our moderate wants could be easily taken in and housed during our absence in the summer, and it could also be inside out of the way when there is plenty of rain so its services are not needed. As water is so near the surface all over our premises, it is an easy matter to sink a well where water happens to be needed, and to move the little engine over to it. This would be very much cheaper than going to the expense of iron pipes to carry the water where wanted, even where one has an artesian well. I am speaking now of the wants of old people like Mrs. Root and myself, and not considering the truck-gardener who wants water in great quantities for his immense crops.

CHUFAS, OR EARTH-ALMONDS.

As you may remember, I gave the above quite a write-up in our Dec. 15th issue; and this write-up, or something else, has sent the price away up. A letter from The Crenshaw Seed Co., Tampa, just at hand, reads as follows: "There are no chufas to be had that we know of in the country, and the last we sold we got \$2.00 per peck for." You may remember their seed catalog claims that ordinary Florida soils will give 50 to 100 bushels to the acre with very little cultiva-

tion. My experience would indicate that you might get something like the above with good ground well fertilized; but the biggest job is to harvest the crop. What do you think it would cost to harvest a crop of potatoes if they were only about as large as white kidney beans? I grew chufas when a boy, more than sixty years ago, and they have been advertised more or less ever since by different seedsmen. All the seed I have to spare is promised, but I think you will find them offered in the seed catalogs. They will grow all the way from Maine to Florida, and I have been told that in some places they get to be a bad weed.

In closing I might mention that egg-plant has been sold as high as \$10.00 a basket, during the past winter, in New York; and neighbor Rood also informs me that it is no unusual thing to get as many as 1000 baskets from an acre of ground. Now, mind you, I have not said that anybody ever got \$10,000 from a single acre of egg-plants, yet my first statements are probably true.

I think this may be a good stopping-place for my talk on "high-pressure gardening in Florida."

SWEET CLOVER IN KENTUCKY, ETC.

Please note that the writer of the following, which we clip from the *Ohio Farmer*, is not a bee-keeper, and does not even mention sweet clover as a honey-plant:

Most of the writers to your valuable paper reside in Ohio, Pennsylvania, and New York—too far north to be of much practical value to us here south of the Ohio River, the most valuable being articles on alfalfa. While alfalfa is well adapted to our soil, is easily started, and, under nearly every circumstance, does well, yet it is to its twin brother, sweet clover, that I desire to call the attention of your readers. This is a biennial that will grow in any kind of soil, no matter how poor, washed, or stony. Where there is enough soil to sprout the seed it will flourish.

This clover has come to be considered of great importance by the farmers of Robinson, Pendleton, and Bracken counties, Ky. Here we raise sheep, cattle, corn, and tobacco; and around this part of Pendleton Co. we do a great deal of dairying, in all of which sweet clover plays an important part. We have bluegrass, alfalfa, red clover, and timothy; yet we have more acres in sweet clover than all the other grasses put together. It is fine pasture, either alone or mixed with other grasses—bluegrass often growing spontaneously along with it. It is among the earliest grass in the spring, and lasts until killed by the frost in the fall. In the spring, young lambs will get rolling fat where permitted to run upon it. Horses and mules become as slick as moles when they run upon it. No grass is superior to it for milk production.

When it is sown in washes it soon levels up the ground. I have seen washes on a hillside, that a horse could not cross, fill up and plowed over in four years. It often piles upon the ground in great heaps, the finest of fertilizer. The roots grow to be large, and are covered with nitrogen nodules which in a few years make the poorest soils yield a bounteous crop. For hay it is second to none, yielding several cuttings a year of hay on which horses will do as much work as on good timothy.

It seems to be as well adapted to wet sandy soils as to our clay hills, growing upon land where alfalfa runs out. Its roots, which rot every second year, form rich humus, thus distributing the fertility evenly through the ground.

A. E. HOWE.

How does the above look to the crowd that, only a short time ago, were trying to make out that sweet clover is a "noxious weed"?

* We have used some of the Northey berries for making sauce, before they were dead ripe; and Mrs. Root, who, you know, is not given to extravagant statements (like myself), says she really believes they make the finest sauce of any berry, or fruit of any kind, that she ever came across before. Just think of it—setting out a few roots while the fruit is in full bearing, and gathering a crop from these same plants set out, in less than one year! We hope to give you a picture of our "blackberry-patch" very soon.